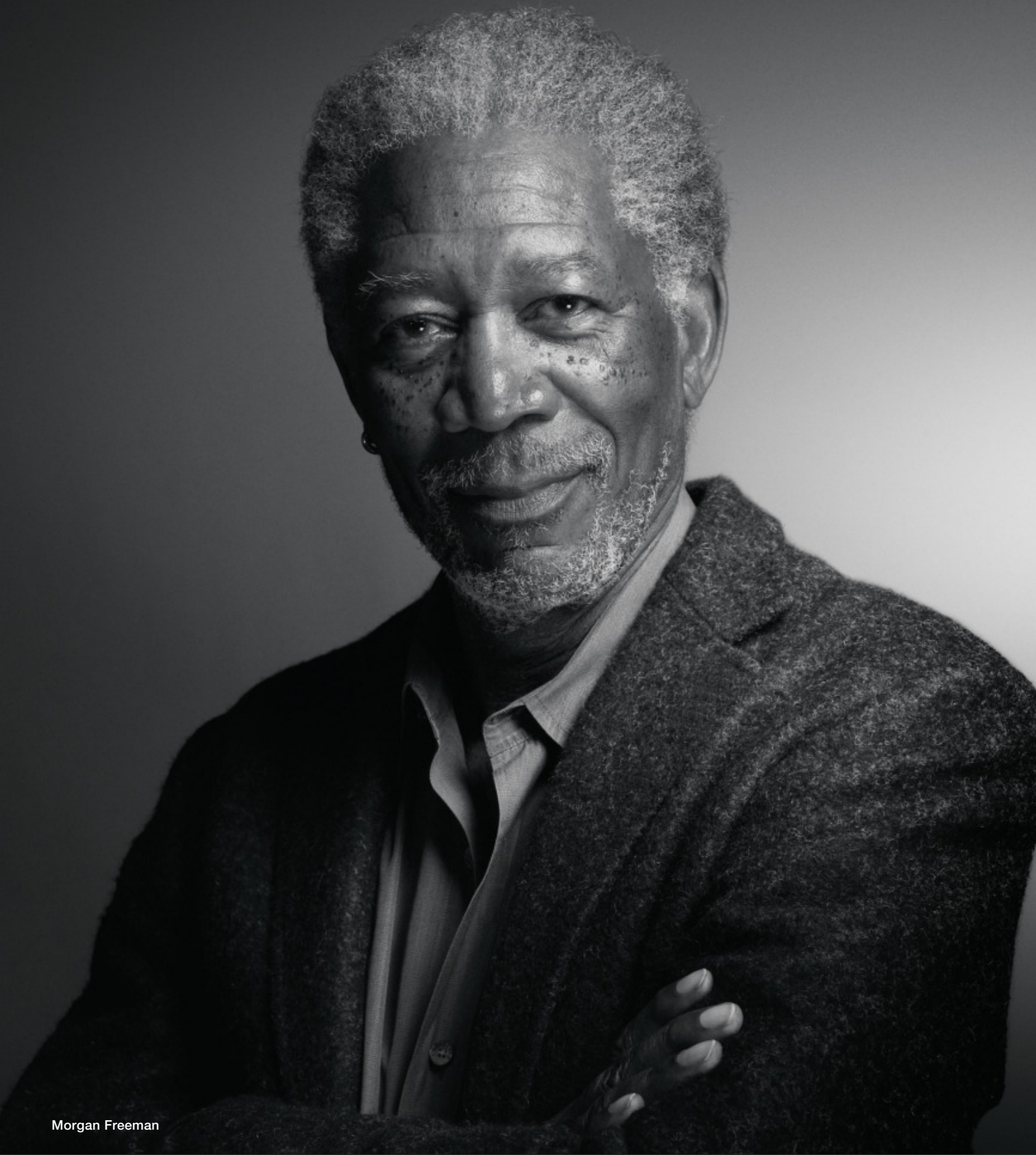


NOV. 11, 2024

Your Vote Is Safe.

HOW THE ELECTION WILL BE PROTECTED | BY BARTON GELLMAN





Morgan Freeman



Grand Siècle
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It takes time to become an icon

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Despite what you may have heard, the 2024 election is on track to be the most secure in U.S. history

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*Early voting in
Anchorage on
Oct. 21*
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Before you vote

THIS IS THE LAST EDITOR'S LETTER WE plan to publish prior to Nov. 5, Election Day in the U.S. If you have been feeling apprehensive, you are not alone. When asked recently, barely half of Americans said they were confident that their vote would be accurately counted. It is no wonder, given the rhetorical and physical attacks on our democracy these past few years, that many voters share the same fear. For our new cover story, we asked Barton Gellman, a former TIME editor-at-large and Pulitzer Prize-winning national-security reporter, for his answer to a simple question: Is your vote safe?

Gellman, who today works at the Brennan Center for Justice at NYU Law School, finds that though there are foreign and domestic actors who are trying to undermine the credibility of the vote in 2024, Americans can be confident that their ballots will be accurately counted and that the election will be free and fair. "[The] arc of the evidence, based on interviews with state, local, and federal election officials, intelligence analysts, and expert observers, bends toward confidence. Since 2020, the nation's electoral apparatus has upgraded its equipment, tightened its procedures, improved its audits, and hardened its defenses against subversion by bad actors, foreign or domestic..." he writes. "The system, according to everyone I asked, will hold up."

We publish this reporting in the spirit of the rest of our coverage of this campaign, aiming to provide trusted guidance so that you can better understand the candidates and the policies they would implement. In September, we launched TIME Votes, our initiative dedicated to giving readers service-oriented stories that provide context for this election cycle as well as accessible, nonpartisan resources for voters. In the next few weeks, we'll be sharing more of that information with readers wherever they find TIME today. We hope this effort is useful to you as you prepare to vote. We also have worked to lift up those who are making the

U.S. election safe and reliable, launching our Democracy Defenders series.

THIS HAS BEEN one of the wildest election campaigns in history. A look back at TIME's cover stories from 2024 shows the path that has taken us to this point. In March, President Joe Biden was stuck in his tracks with more than 30 pollsters, strategists, and campaign veterans telling TIME they believed Biden would lose. In April and June, we offered two companion interviews, the latter with Biden at the White House, the former with Donald Trump at Mar-a-Lago, asking each to explain what the world would look like if they were elected. This summer witnessed Biden's freezing at the debate, Trump's surviving an assassination attempt at a rally, and then Biden's eventual decision to step aside from the campaign, leading to Kamala Harris' moment.

The Vice President locked up her party's nomination with a speed and force few predicted. This fall, we watched Harris outperform Trump at their only debate—a moment that Democrats now fear could have been the apex of her campaign—and the emergence of J.D. Vance as the face of the New Right. Still, despite all this tumult, if the polling is accurate, the fundamental dynamics of the race appear to have stayed remarkably static, with Harris and Trump effectively tied in the battleground states that will likely decide the election.

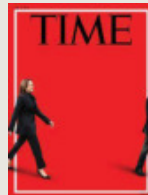
Covering all of this has been our indefatigable team of experienced reporters and editors in Washington, D.C.; New York City; and around the world. We are in their debt and are privileged to report on this election for you. Here's to a safe and secure vote, and to our grand exercise in democracy.



Sam

Sam Jacobs,
EDITOR-IN-CHIEF

2024
ELECTION
COVERS



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Improving patient care

At the inaugural TIME100 Health Leadership Forum in New York City on Oct. 22, health leaders discussed the most pressing issues in health care: equitable access to health care, women's health, the impact of emerging technologies, and health-policy changes. At top right, Mahogany Browne kicked off the event by reading an original poem; above, from left, former White House official Raj Panjabi, Lori M. Reilly of PhRMA, and Dr. Ziyad Al-Aly of the VA St. Louis Healthcare System appeared in conversation; at right, TIME editor-in-chief Sam Jacobs spoke to TIME's 2024 Kid of the Year, Heman Bekele, a 15-year-old skin-cancer researcher.

time.com/health-forum



Gathering AI experts

On Oct. 16, big names in the artificial intelligence space attended the first TIME100 Impact Dinner London. Below, from left, TIME senior editor Ayesha Javed interviewed a panel made up of honorees from TIME's list of the 100 most influential people in AI, including Jade Leung of U.K.'s AI Safety Institute, Victor Riparbelli of Synthesia, and Abeba Birhane of Trinity College Dublin. More at time.com/ai-dinner



TUNE IN

Now streaming on Prime Video: *Megan Thee Stallion: In Her Words*, a documentary about the Grammy Award winner, co-produced by TIME Studios, Amazon MGM Studios, and Roc Nation.

On the covers



Illustration by Pablo Delcán and Danielle Del Plato for TIME



Photograph by Jo Whaley for TIME

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DIGITAL COVER

On Oct. 18, after the death of Hamas leader Yahya Sinwar, TIME published a story—also in this issue—with an online-only cover using the “red X,” which has appeared on the cover at five previous historic moments.



Illustration by Tim O'Brien for TIME

TALK TO US

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A.



B.



I guess I was a little bored. For the past hour, I'd been on the phone with Daniele, the head of my office in Italy, reviewing our latest purchases of Italian gold, Murano glass and Italian-made shoes and handbags.

"Daniele," I said, "What is the hottest jewelry in Italy right now?"

His reply? Woven gold bracelets studded with gems. He texted me some photos and I knew immediately that this was gems that Raffinato just had to have.

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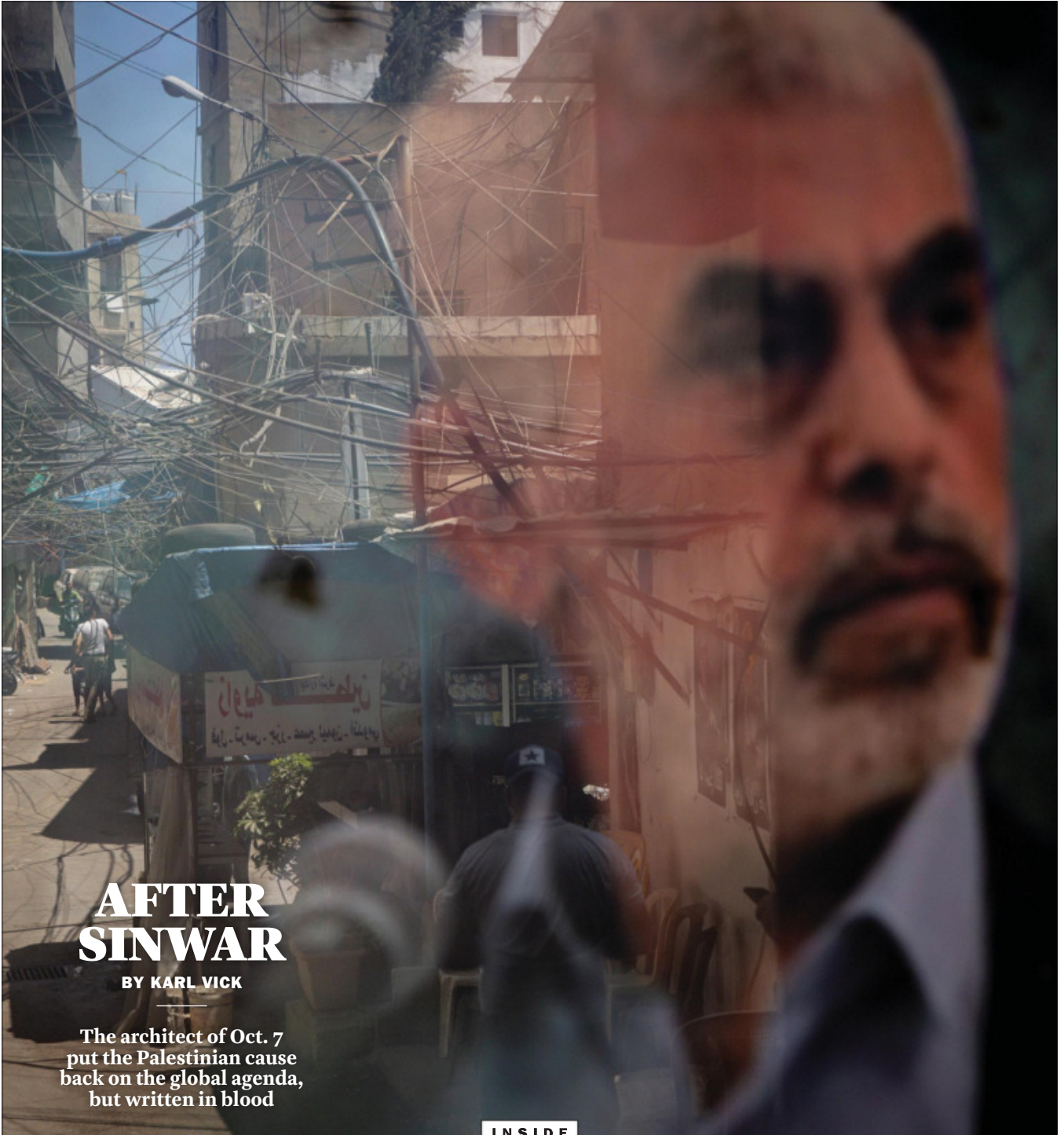
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The Brief



AFTER SINWAR

BY KARL VICK

The architect of Oct. 7
put the Palestinian cause
back on the global agenda,
but written in blood

INSIDE

TICKS BRING A RISE
IN 'AMERICAN MALARIA'

THE ONLINE LIFE AND
DEATH OF LIAM PAYNE

THE HUNT FOR THE
INVENTOR OF BITCOIN

PHOTOGRAPH BY CHRIS MCGRATH

THE CORPSE OF YAHYA SINWAR WAS FOUND IN the landscape he envisioned—the dusty rubble of an apocalyptic war ignited by the sneak attack he had planned in secret for years, and launched on Oct. 7, 2023. The catch was that the fighting extended only 25 miles east and at most four miles south from the shattered villa in southern Gaza where the Hamas leader died one year and nine days later. “The big project,” as Hamas called Sinwar’s plan, had not engulfed the whole of the Middle East as hoped, nor brought about the collapse of Israel. Ground zero for the apocalypse remains the Gaza Strip, the Palestinian enclave Sinwar governed when he unleashed the attack that led to its destruction.

Terror aims to provoke an overreaction. If the first phase of Oct. 7—breaching the fence erected by Israel and overrunning its military bases—was an audacious military operation, the assault on the civilian settlements beyond was something else. During his 22 years in Israeli prison, Sinwar was an avid student not only of Hebrew but also of Jewish history, including pogroms. His 2011 release brought another lesson. Sinwar, dubbed the Butcher of Khan Yunis by his captors for his brutality in dispatching suspected informers, returned to Gaza among more than 1,000 Palestinian prisoners whom Israel traded for the freedom of a single Jewish soldier. As Israeli hostage negotiator David Meidan has observed: “The matter of captives is our soft underbelly.”

And indeed, the fate of the 250 Oct. 7 abductees remained the central preoccupation of Israelis over the past year, while the rest of the world shifted its attention to the carnage in Gaza. At least in theory, Sinwar’s death may open the door to a cease-fire that frees the dozens of Israeli hostages still held by Hamas. Prime Minister Benjamin Netanyahu, having resisted a deal while the architect of the worst terrorist attack in his nation’s history remained at large, was described in reports as more open to one in a call with President Joe Biden.

What has moved beyond imagination is negotiations of any other kind. The Palestinian question is back on the world agenda, and Israel’s global reputation, already suffering with its half-century occupation of Palestinian territories, is deeply stained. But those things matter most in the realm of the kind of negotiated peace that Hamas rejects. Camp David and Oslo were the prism through which the world viewed the Israeli-Palestinian conflict. Oct. 7 shattered it.

Hamas is an Arabic acronym for the Islamic Resistance Movement, and the manner of Sinwar’s death—in

a firefight with a superior Israeli force—reinforced the defiant appeal of a group that exists both as militia and political movement. Most polls over the past year have shown Palestinians more inclined to embrace its militant approach, and Sinwar’s death is no more likely to spell the end of Hamas, as either an idea or an organization, than did Israel’s assassination of a string of previous leaders, including its founder.

IN THE RUINS OF GAZA, however, where 1.9 million people have fled their homes and the risk of famine grows, support for the Oct. 7 attack shows signs of slipping. In a September poll by the well-regarded Palestinian Center for Policy and Research, 57% of Gazans called the decision to launch the Oct. 7 attack “incorrect.” In June, the same percent had called the decision “correct.” The

shift may acknowledge not only the physical reality (two-thirds of buildings in Gaza are either damaged or destroyed) but also the political reality from which it flows: confrontation on military terms allows Israel to frame the Palestinian question not as one of national aspiration, or of justice, but as a question of security. And, especially with the \$17.9 billion in military aid sent from the U.S. this year, security remains Israel’s strong suit.

Caught flat-footed by Sinwar’s assault, Israel has since moved methodically and lethally against the forces Hamas had hoped would come to its aid—Hezbollah in Lebanon, the Houthis in Yemen, and their deeply unsettled common sponsor, Iran. Sinwar, who spent much of the past year in the maze of tunnels beneath Gaza, was reported to have sur-

faced in order to make his way to the enclave’s north, where Israeli forces had returned, shutting down food aid for days and warning residents to evacuate or be regarded as targets. He was far in the south, in Rafah, when his party was spotted by Israel Defense Forces trainees on patrol. Cornered in a ruined building, he died by a sniper round to the head.

By the count of the Hamas government he led, Sinwar, 61, was preceded in death by 42,438 of his constituents, many of them women and children. The whereabouts of his own family was unknown, but several members were thought to appear briefly in surveillance footage recovered earlier this year from an underground redoubt Israeli forces said was located beneath a cemetery. In it, Sinwar moves single file into a tunnel behind a girl clutching a doll and a boy using a flip phone as a flashlight. □

**‘There is
now the
opportunity
for a “day
after” in Gaza
without
Hamas in
power.’**

—PRESIDENT JOE BIDEN



Victory for Liberty

Members of the New York Liberty celebrate their 67-62 win over the Minnesota Lynx in the finals of the Women's National Basketball Association on Oct. 20 at Barclays Center. With the best-of-five series tied at two games each, the Brooklyn-based Liberty secured the first title in its 28-season history in a riveting game that went into overtime.

THE BULLETIN

Menendez brothers case returns to the spotlight

THE FATE OF ERIK AND LYLE MENENDEZ has drawn renewed attention with the revelation of new potential evidence, fresh advocacy efforts for the brothers, and two Netflix shows highlighting the notorious case for 2024 audiences.

DOUBLE MURDER The Menendez brothers were convicted in 1996 of first-degree murder for the 1989 shooting of their parents Jose and Kitty Menendez in their Beverly Hills, Calif., home. They were sentenced to life in prison without parole. In an initial trial—later declared a mistrial—defense lawyers alleged the brothers were sexually, physically, and emotionally abused by their father and feared for their lives. They also alleged that their mother knew about the abuse

and did nothing to stop it. But the judge in a second trial restricted evidence and testimony relating to abuse.

NEW EVIDENCE The L.A. district attorney's office began reviewing the case after lawyers representing the brothers, who have served 34 years so far, requested a resentencing. They say that there is new evidence of the alleged abuse, including a letter Erik wrote to his cousin Andy Cano in December 1988. "I've been trying to avoid dad. It's still happening Andy but it's worse for me now ... Every night I stay up thinking he might come in," the letter read.

Roy Rossello, a member of the boy band Menudo, has also publicly alleged that Jose Menendez abused him when he was 14.

PUBLIC SUPPORT The case re-entered the spotlight with the release of the Netflix drama *Monsters: The Lyle and Erik Menendez Story* in September and a separate documentary about the case, *The Menendez Brothers*. Some on social media have defended the brothers, and celebrities including Rosie O'Donnell and Kim Kardashian have advocated for their release.

Around two dozen family members formed a coalition to call for a resentencing for the brothers—and on Oct. 24, Los Angeles DA George Gascón announced that his office would recommend that the brothers be made eligible for parole. "I believe under the law resentencing is appropriate," he said, noting that the final decision would be made by a judge.

—SOLCYRÉ BURGA

GOOD QUESTION

What is 'American malaria' and are you at risk?

BY JEFFREY KLUGER

FEW THINGS WILL LEAVE YOU FEELING QUITE SO ICKY AS returning from a jaunt outside and finding a tick clinging to your skin. Not only is the unwelcome parasite sucking the blood from your body, it may also be leaving something behind: bacteria, viruses, or smaller parasites that can cause at least 15 different diseases, according to the U.S. Centers for Disease Control and Prevention (CDC). Lyme disease, Powassan virus, Rocky Mountain spotted fever, and Heart-land virus are just a few of them.

Another, babesiosis, is causing particular concern. The disease is colloquially known as “American malaria,” partly because of its widening spread and partly because of its clinical profile. Like malaria, it can lead to headache, fever, chills, nausea, vomiting, altered mental state, anemia, low blood pressure, respiratory distress, and more.

The condition is on the rise. A paper recently published in the journal *Open Forum Infectious Diseases* has found that more Americans are getting babesiosis—often alongside other tick-related infections.

Paddy Ssentongo, an infectious-disease fellow at Penn State Health Milton S. Hershey Medical Center, and his colleagues studied more than 3,500 Americans with babesiosis from 2015 to 2022. One striking finding is how fast the disease is exploding in the U.S. In the seven-year span of the survey, cases of babesiosis increased an average of 9% per year—owing to a warming world, which is expanding the range of the black-legged tick, the principal babesiosis vector. In the Northeast, cases in Maine grew from nine to 138 from 2011 to 2019, an increase of 1,433%, and in Vermont in the same period, from two to 34, or 1,600%.

The ticks are not making their way to new habitats on their own, but rather are hitching rides aboard one of their principal hosts—the white-tailed deer, which are expanding their own range, drawn by warmer temperatures and reduced snowpack. Ticks are also carrying more pathogens. Of the people in the sample group who were found to be carrying babesiosis, 42% were also infected with one or more additional tick-borne diseases. Of those, 41% also had Lyme disease; 3.7% had ehrlichiosis; and 0.3% had anaplasmosis.

On its face, that seems like bad news. The wide-ranging symptoms of babesiosis can be especially dangerous in people with compromised immune systems. Ehrlichiosis also

leads to fever, chills, nausea, vomiting, diarrhea, and confusion, and in later stages can cause brain damage, uncontrolled bleeding, and death. Anaplasmosis can lead to similar symptoms and potentially fatal breakdowns, including respiratory failure and bleeding problems.

PARADOXICALLY, HOWEVER, the researchers found that infection with more than one of these pathogens at the same time may actually have a protective effect. The risk of death from babesiosis turned out to be higher among the people who were infected with that disease alone, as opposed to those who had co-infections.

“Having both babesiosis and Lyme disease seemed not to be associated with worse mortality,”

Ssentongo said in a statement accompanying the release of the study. “It’s speculated that the concurrent presence of other tick-borne infections in the blood could alter the immune response by possibly ‘boosting’ it to effectively fight infections.”

That’s not the only reason people with co-infections may do better than those with babesiosis alone. The typical treatment for babesiosis is a

combination dose of the antibiotics azithromycin and atovaquone. Lyme disease, anaplasmosis, and ehrlichiosis are treated with a different antibiotic, doxycycline. People who are co-infected with one or more of those diseases along with babesiosis are more likely to be treated with doxycycline. That, says Ssentongo, raises the question as to whether doxycycline is effective against the babesia parasite, which requires more research.

Of course, the best way to deal with any of these tick-borne diseases is not to get infected with them in the first place. Wearing long-sleeved shirts and full-length pants, tucking pant cuffs into socks, wearing insect repellent, showering after coming inside, and running a full-body check for ticks are all proven infection preventives. □

▼
Ticks can carry bacteria, viruses, and smaller parasites that cause disease



Cases grew by 1,433% in Maine from 2011 to 2019 and 1,600% in Vermont



DIED

Liam Payne

Global phenomenon

ON OCT. 16, FORMER ONE DIRECTION singer Liam Payne died at 31 in Buenos Aires after falling from a third-floor balcony. The last hours of his life were eerily shared on his Snapchat, highlighting a career painstakingly documented online.

Payne became a global star in 2010 when Simon Cowell picked him as one-fifth of his next boy-band venture on *The X Factor*. The group—which also included Harry Styles, Niall Horan, Louis Tomlinson, and Zayn Malik—came in third on the show. But by the following year, they had already released their soon-to-be quadruple-platinum first single, “What Makes You Beautiful,” and debut album *Up All Night*, and embarked on a world tour.

Directioners, as fans were known, constituted what can fairly be called a new wave of Beatlemania for the internet age. Barely a week went by where the group

didn’t smash a chart or YouTube record; during a 2013 tour, 5,000 fans camped outside their hotel in Mexico City.

In 2016, they went on an indefinite hiatus, Horan ending their final show by promising: “We will be back.” Their next reunion, it turned out, would be for the surviving foursome to remember Payne in the days following his death.

Like his bandmates, Payne pursued a solo career. But poor critical reception, strange public appearances, struggles with addiction and, later, veiled accusations of abuse alleged by his ex-fiancée and then of inappropriate behavior from a growing number of young fans, led to a tarnished image. And so his death quickly yielded conversations about how to mourn a version of a person fans once loved, while also making space for the ways in which others claim to have been hurt by them. One Direction changed the internet, and Liam Payne was always going to be immortalized by it. But that fact has never been more sobering than in his death. —LUCY FORD

UNVEILED

NASA

space suits

Lunar mission

NASA revealed its new moon suit on Oct. 16, intended to be worn by the crew of *Artemis III* as early as 2026. Developed in collaboration with the Houston-based aerospace company Axiom Space and the Italian fashion giant Prada Group, the suit is the product of Axiom’s \$228 million contract with NASA. Lunar suits used during the Apollo program were designed to withstand temperatures as low as -208°F during excursions lasting as long as six hours. The new suit, which can be worn for eight hours, is built for the even colder -373°F conditions at the south lunar pole, where astronauts will go spelunking for ice that can be used for potable water, breathable oxygen, and hydrogen-oxygen rocket fuel. —J.K.



DIED

Fethullah Gulen—the Turkish cleric accused of being behind a failed 2016 coup against President Recep Tayyip Erdogan—on Oct. 20 at age 83, at a hospital in the U.S.

EXPULSED

Six Indian diplomats from Canada, and six Canadian diplomats from India, on Oct. 14, in a row over the assassination of a Sikh separatist leader on Canadian soil last year.

ARRIVED

Two 3-year-old **giant pandas, Bao Li and Qing Bao**, from China to the U.S. on Oct. 15. The National Zoo in Washington said it will officially debut the bears in January 2025.

AWARDED

National Medals of Arts and National Humanities Medals, to 39 people on Oct. 21, including **Steven Spielberg, Missy Elliott, and—posthumously—Anthony Bourdain and Selena Quintanilla**.

AGREED

The payment of \$880 million by the Archdiocese of Los Angeles, to more than **1,000 people who said they were sexually abused** by local Catholic priests, in a settlement announced on Oct. 16.



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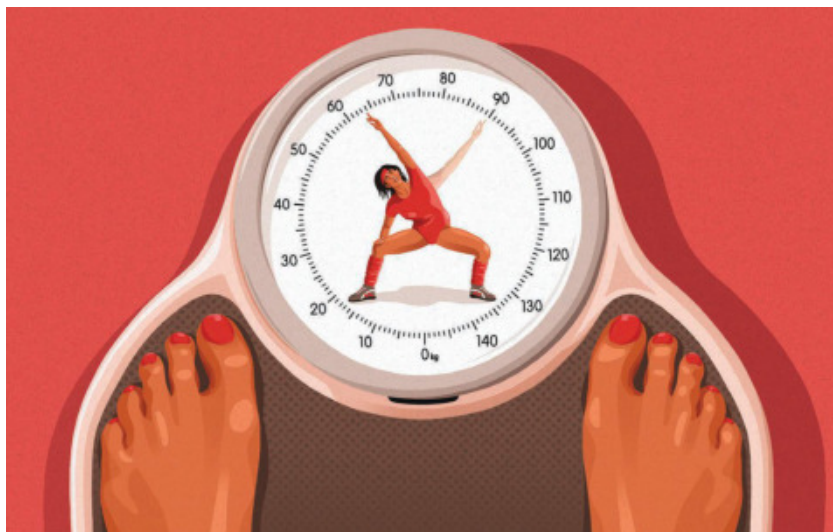
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THE BRIEF HEALTH



DIABETES

Unmasking prediabetes

BY JAMIE DUCHARME

TYPE 2 DIABETES DOESN'T ALWAYS arrive with a bang. It can develop slowly but eventually result in marked side effects like extreme thirst and hunger, frequent urination, blurry vision, tingling sensations, and fatigue. When the body fails to properly make or use the hormone insulin, blood sugar rises, and sustained levels can damage organs from the heart to the kidneys.

There's an even subtler stage before diagnosis: prediabetes. People with the condition have blood-sugar levels that are higher than normal, but below the diabetes threshold. There aren't usually any noticeable symptoms, which is why 80% of U.S. adults with the condition don't know they have it, according to the U.S. Centers for Disease Control and Prevention. Unfortunately, that's a lot of people: an estimated 38% of U.S. adults have prediabetes, and the trend is rising globally.

Most of the time, prediabetes is discovered "incidentally" at an annual physical through a routine blood test, says Dr. Osama Hamdy, medical director of the inpatient diabetes program at Joslin Diabetes Center in Boston. A diagnosis is an opportunity to turn things around.

"If you identify it in this intermediate or borderline state, you could potentially intervene to bring it back to normal," says Dr. Rifka Schulman-Rosenbaum, director of inpatient diabetes care at Long Island Jewish Medical Center. Prediabetes progresses to Type 2 diabetes roughly 70% of the time, research suggests, but it's fixable with the right actions.

"You can reverse the course of the disease just by weight loss," Hamdy says. His research suggests people with prediabetes who lose 7% of their body weight improve their insulin function by almost 60%.

Exercising and making dietary changes, like cutting back on fast food and sugary drinks, are crucial steps, Schulman-Rosenbaum says. More people are also getting assistance from antiobesity drugs such as Wegovy and Zepbound, which are similar to the popular diabetes treatments Ozempic and Mounjaro. These drugs are not specifically approved for prediabetes. But recent research by Eli Lilly, the maker of Zepbound and Mounjaro, suggests that in adults with prediabetes, the compound in these drugs cuts the risk of developing Type 2 diabetes by more than 90%, compared with a placebo.

Hamdy recommends that people ask their doctors to start screening them for prediabetes by age 40. It's better to know your status—because addressing prediabetes early can make all the difference later on. □



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TECHNOLOGY

A filmmaker's quest to unmask Bitcoin's creator

BY ANDREW R. CHOW

WHO IS BITCOIN'S FOUNDER, SATOSHI NAKAMOTO? THE question has perplexed and excited cryptocurrency fans ever since Bitcoin was created by someone with that username in 2009. Fans have endlessly theorized, debated, and hunted for clues across the web, while investigative journalists have tried to unwind the mystery with no success. The answer matters because Satoshi's ideas are imbued with near religious significance—and because whoever it is owns about \$60 billion worth of Bitcoin, which would make them roughly the 25th richest person alive.

In October, the filmmaker Cullen Hoback released the documentary *Money Electric: The Bitcoin Mystery* on Max, a film that claims that Satoshi is Peter Todd, a 39-year-old Canadian Bitcoin developer, whose ideas and hot temper have earned him notoriety in the Bitcoin community.

In an email to TIME, Todd denied that he is Satoshi. And other early Bitcoiners expressed skepticism based on their knowledge of Todd's coding ability and temperament. But Hoback is confident he's come to the right conclusion. "People have a vision of who they want it to be: they want someone perfect, who matches their ideals," Hoback says. "But this is where the evidence lies."

In 2021, Hoback released a similar project: *Q: Into the Storm*, which set out (and claimed) to identify the person behind the QAnon conspiracy. After that show aired on HBO, executive producer Adam McKay (*The Big Short*) suggested Hoback try to find Satoshi next. Hoback spent several years traveling the world with Bitcoin luminaries, and soon narrowed in on Todd, based on small clues. Todd had been interested in creating digital cash from an early age. He was a self-taught coder whose level of programming seemed to match Satoshi's.



Bitcoiner Peter Todd, seen caving in *Money Electric*

THEN, HOBACK FOUND what he considered a "smoking gun": a thread from a Bitcoin forum in 2010, two days before Satoshi stopped posting on the site and largely disappeared from public life. In the thread, Satoshi wrote a few paragraphs proposing a highly technical change to Bitcoin's code. A few hours later, Todd—who was, at this point, a nobody in the Bitcoin community—responded with a slight correction. When Hoback reread this post, he came to believe that Todd wasn't correcting Satoshi, but was Satoshi, and had mistakenly logged into his personal account.

When Hoback confronted Todd about his theory on camera, Todd called it "ludicrous," but also became visibly nervous. "His reaction is extremely telling," Hoback says.

In an email, Todd wrote that the quest to find Satoshi was not only "dumb," but "dangerous." He later told *Wired* he'd been forced into hiding because of "harassment by crazy people." The Bitcoin community as a whole is incentivized to keep Satoshi anonymous: In 2021, Coinbase included Satoshi's identification in a list of business risk factors. Many Bitcoiners have responded with anger to the HBO project's very existence, arguing that Satoshi's privacy should be respected and that he could be charged by governments with violating securities laws or threatening national security if identified.

Over Bitcoin's 15-year history, similar attempts to unmask Satoshi have been met with fierce backlash. "The fact that Bitcoin was kind of put out there and then Satoshi vanished is integral to its success," says Austin Campbell, the founder of a crypto consultant company.

Hoback hopes the documentary will spur deeper investigations. "This conclusion is unexpected and it's not who many people in the Bitcoin community want it to be," he says. "But maybe once they see the film and absorb the evidence, then they'll look into this as well."

'They want someone perfect ... but this is where the evidence lies.'

—CULLEN HOBACK, FILMMAKER

POLITICS

Larry Hogan's ethics issue

BY ERIC CORTELLESA

ON JAN. 27, 2021, THEN GOVERNOR Larry Hogan had good news for affordable housing in Maryland: nearly \$40 million in competitive awards to spur construction of 18 low-income housing projects. "During our administration," Hogan said, "the State of Maryland has provided financing and tax credits to create or preserve more than 20,000 affordable rental units across the state." But there was one detail Hogan didn't mention: one of the projects was being developed on his own family's property.

The bucolic land in Frederick County had been in the Hogan family since the governor's father, former Congressman Larry Hogan Sr., and his second wife, Ilona Hogan, bought it in 1983 for \$230,000. Now, three years after Hogan Sr. had passed away and six years into his son's tenure as governor, Hogan's stepmother was converting the 10-acre property into an income-restricted housing facility. Ilona Hogan had transferred the property into a limited liability company (LLC) she owned, according to land records reviewed by TIME. Osprey Property Co., a listed client of the younger Hogan's real estate brokerage firm, HOGAN, had been engaged to helm the project. The \$15 million in low-income housing tax credits over 10 years and \$1,035,000 in state funds that Hogan announced that day made Crestwood Manor, as the 60-unit complex would become known, a reality. It also paved the way for the ultimate sale of the property. In November 2022, Ilona Hogan sold it to Osprey for \$3.75 million.

The Crestwood Manor project

is the latest example of a potential conflict of interest between Hogan's authority over Maryland housing dollars as governor and his family's real estate businesses. Maryland law says that officials cannot knowingly participate in decisions in which they or a close relative have an interest. "Approving transactions which benefit you personally or your family or your affiliated interests is, I would say, at a minimum, unethical," says Warren Deschenaux, former director of Maryland's nonpartisan Department of Legislative Services.

TIME REPORTED on Oct. 10 that nearly 40% of all the state's competitive affordable-housing awards that

to issue additional loans or grants to four of those developers, according to public records. Osprey was among them. On Feb. 22, 2017, he voted in favor of a grant easement for improvements to a site it owned and operated, according to public documents reviewed by TIME. "This is a shocking ethical lapse," says Walter Shaub, former director of the U.S. Office of Government Ethics.

TIME tried to contact Ilona Hogan for comment through her LLC, HOGAN, and former governor Hogan, but she couldn't be reached. A Hogan spokesman, Michael Ricci, says the former governor had nothing to do with selecting the Crestwood Manor project. "Governor Hogan and his of-

fice played no role in the evaluation or selection process for these merit-based awards," Ricci says. "All decisions are made by agency officials on a competitive basis as part of a rigorous application process held by the Department of Housing and Community Development (DHCD). These safeguards prevent any personal or political considerations from entering the process."

Three Hogan administration officials tell TIME that Hogan and his deputies reviewed

and approved all awards. One attended the meeting in late 2020 with the governor and his staff regarding the slate of awards that included Crestwood Manor. Ricci did not respond to questions asking whether Hogan knew the awards were benefiting his stepmother or whether Hogan himself profited from the development at any stage.

Hogan is locked in a high-stakes U.S. Senate race against Prince George's County Executive Angela Alsobrooks. Maryland Democrats have vowed to enact tighter ethics laws and have called for an investigation into Hogan's handling of housing issues while in office. □



Hogan speaks to supporters on May 14 in Annapolis, Md.

Hogan approved as governor went to listed clients of his real estate firm, in which he maintained principal ownership interest after handing day-to-day control to his half-brother Timothy. As one of three members of Maryland's Board of Public Works, an administrative body that determines how taxpayer money gets spent, Hogan voted on five occasions

'This is a shocking ethical lapse.'

—WALTER SHAUB,
FORMER HEAD OF THE U.S. OFFICE
OF GOVERNMENT ETHICS





Left adrift

A relief vessel ties up on Oct. 21 to a boat carrying more than 100 Rohingya refugees, close to the shore off Labuhan Haji in Indonesia's Aceh province. Local people initially refused them entry but later agreed to allow them ashore for no more than a week. Having originally fled fighting in Myanmar, the refugees left Bangladesh on Oct. 9, hoping to reach Malaysia.

Photograph by Chaideer Mahyuddin—
AFP/Getty Images
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The View

PSYCHOLOGY

IT'S TIME TO SET BOUNDARIES

BY BECKY KENNEDY

Here's the thing: kids have always pushed limits and asked for things that aren't good for them; in fact, this is part of kids doing their job, as they're meant to explore the world and figure out the "edges" or limits. And while kids continue to do their job, parents are really struggling to do theirs—and as a result, the family system is off-balance and mental health is suffering. ▶

INSIDE

THE DECLINING ELECTORAL
FORTUNES OF JUSTIN TRUDEAU

HOW TO MAKE
THE MOST OF BEING ALONE

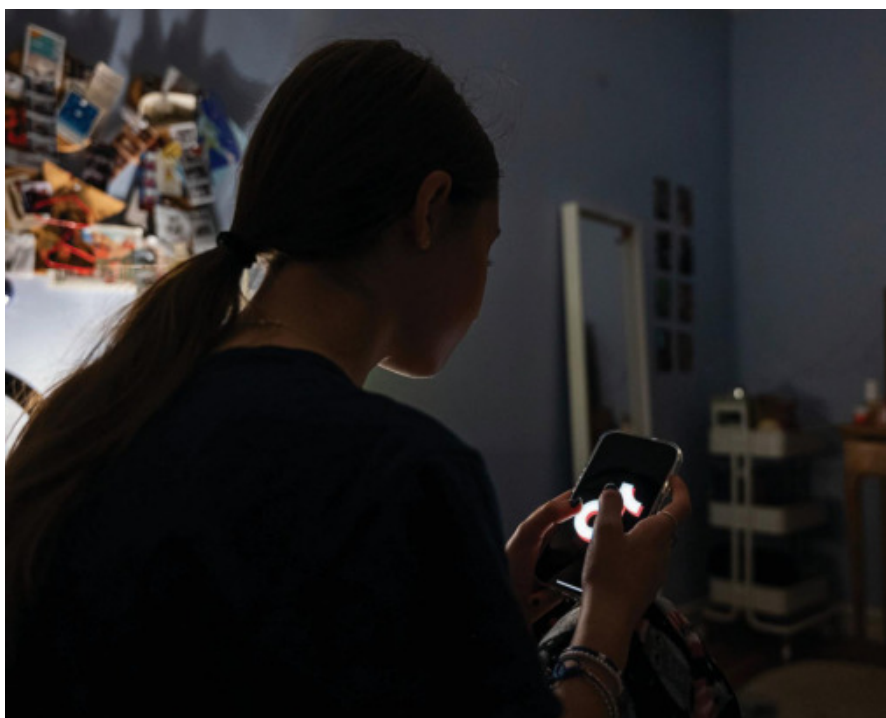
WHAT ANIMALS CAN
TEACH US ABOUT DEATH

We've all seen the data around phones, social media, and the youth mental-health crisis. We know this generation of children has staggering rates of anxiety and depression. As a clinical psychologist specializing in parenting and family relationships, I'm as concerned as anyone and yet I've been shocked that one key word—really, a key foundational principle in life—has been left out of the conversation: *boundaries*.

The cost of not being able to set boundaries with kids has never been higher. Decades ago, if parents struggled to hold boundaries and tolerate pushback, a child might have had an extra cupcake or stayed out too late. Today the cost of not being able to set boundaries looks more like freely scrolling TikTok at age 8 or playing endless hours of video games at the expense of participating in the real world. I agree that we are facing a crisis—and yet I don't see only a crisis of phones and social media, I also see a crisis of what I call Sturdy Leadership at a time when our kids need it more than ever.

What do I mean by Sturdy Leadership? Sturdy Leadership is a model of parental authority where parents both hold boundaries and stay connected to a child or, actually, improve connection through these moments. They do this by validating their child's feelings while holding firm on what is best for everyone. This is the same model that's effective in the workplace or on a sports team—a leader who can stay true to their principles and who cares about other people's feelings without being taken over by them.

So what does this look like in practice? Imagine your 5-year-old wants you to buy a toy at a toy store—even though you explicitly said you were only going in to buy a birthday present for a cousin. Your 5-year-old starts begging for a toy, and you feel a tantrum coming on. Sturdy Leadership, in response, would look like: “I get it. It's hard to see so many fun toys and not get something. Today I'm only buying a toy for your cousin. I can take a picture of what you want so we can remember it later. I love you, we'll get through this.”



You can think of it like a math equation: Validation of feelings + holding boundaries = Sturdy Leadership.

What about an example with an older child? Imagine you just told your 12-year-old daughter no when she asked to have a sleepover, and she is—understandably—annoyed with you about not getting what she wants. In this moment, Sturdy Leadership could look something like this: “One of my main jobs is to make decisions that I think are good for you, even when you're upset with me. This is one of those times. I get that you're upset, I really do.” In this example the parent validated their child's feelings while holding firm on their decision to do what they believe is best.

HERE'S WHY BOUNDARY SETTING—early and often—is so important: when the day comes that our kids ask for a phone or for Instagram, our approach will not be isolated to some universally recognized “media policy” we have as parents; our approach will simply be an extension of the way we've always interacted with our kids around their wants and requests.

As much as I'm a fan of boundaries,

I'm an even bigger fan of this idea: it's never too late, the right time to change is always right now. So if you're a parent who already gave your kids a phone or access to social media and you wish you had held back, all is not lost. Think about yourself like a pilot who always has the right to return to base should the skies be more turbulent than expected—in fact, this is something passengers would want a pilot to do, even if they seem annoyed in the moment. You are the pilot of your family plane—and while your kids will never thank you outright for changing your rules, they will, years later, very much benefit from your sturdiness and acts of protection.

My life's work has been to help parents become confident, Sturdy Leaders so they can raise confident, sturdy kids. Yes, phones and social media are impeding our kids' ability to flourish, but parents also need more support. We need to expand the conversation so that rather than feeling locked in fear, parents know the practical skills they can build to bring change and support their kids.

Kennedy is a clinical psychologist and CEO and founder of Good Inside

THE RISK REPORT BY IAN BREMMER

The anti-incumbent wave is coming for Trudeau



IN ELECTIONS EARLIER this year, incumbent leaders and parties in India, South Africa, France, and Britain took a beating. America's President and Japan's Prime Minister were pushed to step aside before their parties face voters. Germany's Chancellor is lucky his country won't hold national elections until next year. Voters everywhere, it seems, want change. Now it's Justin Trudeau's turn to face the music.

Canada's Liberal Party-led government and its increasingly unpopular Prime Minister face a growing risk of early elections they appear all but certain to lose. After winning power with a majority of parliamentary seats in 2015, elections in 2019 left Trudeau's Liberals with a minority government which they retained following a snap election in 2021. Then, on Sept. 16 of this year, the Liberals hit an iceberg when they lost a safe seat in Montreal, LaSalle—Émard—Verdun, in a by-election. With apologies to Frank Sinatra, if Trudeau's Liberals can't make it there, they can't make it anywhere. The winner instead: the Bloc Québécois.

Pollster Angus Reid found in September that nearly two-thirds of respondents nationwide disapproved of Trudeau's performance as PM. The latest polls show that Canada's Conservative Party, now led by Pierre Poilievre, could win nearly four times as many seats as the Liberals. Voters favor the Conservatives

on jobs, the cost-of-living crisis, taxes, immigration, and crime.

Some Liberal MPs have called on Trudeau to quit his post as PM and party leader in favor of a fresh face ahead of the next elections, but polling offers no indication that a Liberal Party replacement would fare much better.

Though the direction of polling appears clear, the timing of the next vote remains uncertain. Federal

WHICH BRINGS US BACK to the Bloc Québécois, a separatist francophone party with much to say about when the next election is held. The party's leader, Yves-François Blanchet, has threatened to withdraw support from Trudeau's government unless the Prime Minister agrees to back a bill that would raise pensions and exempt some farming sectors from future trade negotiations. Blanchet has warned that if his demands

aren't met, the bloc will open talks with the Conservatives and the New Democratic Party, which sits to the left of the Liberals, to collapse Trudeau's government.

It's even possible the Bloc Québécois will win more seats than the Liberals in the next election, raising the prospect of Blanchet as Leader of the Official Opposition. If so, the 2026 election in Quebec could become the testing ground for a third independence referendum for the mainly French-speaking province. If Quebec voters are frustrated

with Trudeau, they have no great love for Poilievre. Rule by Conservatives, which will rely heavily on votes in Ontario and western provinces, might also leave Quebecers feeling underrepresented in government.

For now, the question is whether Liberal MPs can persuade Trudeau to stand down and how soon other parties can force an election. A bad year for incumbents worldwide may soon get worse. But the bigger story for Canada may be the resurgent Quebec nationalists who want one more shot at a country of their own. □



Trudeau, who is in his third term as Canada's Prime Minister, at a press conference in Ottawa on Oct. 14

elections are currently scheduled for October 2025, but Trudeau's Liberals lead a minority government in a hung Parliament, and opposition parties could join forces to compel an early vote at any time. The current government could be defeated in a no-confidence vote that would set up a potential campaign as soon as November. Even if Trudeau survives another challenge—his government has already survived two no-confidence motions in recent weeks—the need to pass a federal budget in April makes a spring election likely.



Health Matters

By Jamie Ducharme

HEALTH CORRESPONDENT

Doctors often say that the side effects you get after receiving a vaccine—fever, fatigue, aches, soreness—are positive signs that your immune system is responding as it should. But does that mean your immune system isn't working if you don't get side effects?

Vaccines work by mimicking an infection, introducing the body to a weakened or broken-down form of a pathogen so it can practice mounting an immune response to the real thing. When the immune system fires up in response to the shot, it can result in inflammation that leaves you feeling lousy.

Some studies have found a link between the severity of post-shot side effects and the strength or durability of protection moving forward. But others haven't found a strong connection. Overall, data suggest that any immune difference between people who experience lots of vaccine-related symptoms and those who don't is minimal, says Florian Krammer, a professor of vaccinology at the Icahn School of Medicine at Mount Sinai.

So why do some people feel terrible while others are fine? Sex, age, and health history all seem to play a part, but scientists don't fully understand why some people are especially prone to side effects, Krammer says. The bottom line is that as long as you don't have a suppressed immune system, **you can be confident the shot worked whether you feel sick or not**, Krammer says; very few people don't respond at all.

If you have side effects, "you can feel your immune system working," he says. "But if you don't, that's fine too. It's probably still working."



For more health news, sign up for Health Matters at time.com/health-matters



Republican Senator Deb Fischer, left, and challenger Dan Osborn



The D.C. Brief

By Philip Elliott

WASHINGTON CORRESPONDENT

THE LAST TIME NEBRASKANS voted for a Senator who wasn't a Republican, George W. Bush was an unpopular President leading a deeply divisive GOP. Which is why it's so curious that Republicans are suddenly rushing to make sure Republican Senator Deb Fischer keeps the seat for a third term—and that Democrats are holding tepid optimism that the deep-red state might be at least open to backing a union boss who is running as an independent.

National Republicans have booked roughly a half-million dollars in advertising time in this past month of campaigning. An outside group with ties to one of the state's richest families is adding \$2 million more to that kitty to boost Fischer's late-emerging nail biter against neophyte Dan Osborn. Meanwhile, national Democrats are publicly denying any involvement but are privately flagging polls—albeit limited in number—suggesting Nebraska may be closer than any state with a 2-to-1 Republican voter-registration advantage should be. In late September, the most respected political

handicapper in the game moved its rating for the race from a GOP gimme to a click closer to the middle.

Put plainly on the Plain: **Nebraska's Senate race stands to become this cycle's out-of-nowhere shocker that neither side saw coming.**

"This was not on my bingo card," says one Democratic strategist working on other Senate races.

A Republican strategist who is a veteran of Senate contests adds, "If Deb Fischer is in trouble, then [Senators] Sherrod Brown, Jon Tester, and Bob Casey are toast in an anti-incumbent year."

So as the campaign heads into its final leg, both parties are left with a late-breaking worry about a Plains-state race that was on no one's radar as the fall began. Other campaigns, too, are watching it as perhaps an early signal that incumbency in this environment does not carry the value and advantages that it once implied.



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PSYCHOLOGY

The beauty of being alone

BY MEGHAN KEANE

THERE'S A LOT OF FEAR AROUND spending time alone. Alone time can make people itchy with boredom. It can carry a stigma (especially if you're single). Worse, recent articles and studies warn us about the dangers of loneliness—one 2017 study by Julianne Holt-Lunstad at BYU's Social Connection and Health Lab claims loneliness is as bad as smoking 15 cigarettes a day. In 2023, U.S. Surgeon General Vivek Murthy published an advisory all about the epidemic of loneliness in America. It details the genuine risks of chronic loneliness, such as increased rates of anxiety and depression, as well as dementia in older adults.

The message? Loneliness isn't just bad for you; it's a killer.

But while it is a serious health problem, what gets lost in these conversations is that not all alone time is the same. There's chronic loneliness—and there's solitude. One is a dangerous epidemic. The other is a skill we need to nurture.

What is chronic loneliness? It occurs when there is unhappiness about a lack of companionship or a perceived sense of social isolation. Being physically

alone isn't the only way to feel lonely. A person can feel lonely while a partner is disrespecting them. Or being surrounded by a group of people with whom they feel like an outsider.

But not all loneliness is a health issue. As the surgeon general's advisory notes, the “transient feelings of loneliness may be less problematic, or even adaptative [than chronic loneliness].”

That's a helpful distinction.

Being alone is when you happen to be by yourself. We do so many activities alone that don't come with the stigmas or dangers of chronic loneliness—

**Not all
alone
time is
the same**

reading a book, doing an art project, cooking a meal, or running errands. This kind of alone time is healing and important. Whether you are single or in a relationship, solitude is a neutral-to-positive

state of being free of the demands of others. While chronic loneliness threatens our health, solitude can be the opposite. Even just 15 minutes of solitude can help you regulate your emotions. Solitude also provides the space for creative thinking to happen. Finding time for solitude can help you gain deeper self-knowledge.

Yet we often don't see a path from loneliness to solitude.

This isn't surprising. One of the main factors of chronic loneliness—the kind with serious health implications—is social isolation. According to the late professor and researcher John Cacioppo of

the University of Chicago, loneliness is a biological signal akin to hunger or thirst. When we are in a state of painful loneliness, it is our bodies giving us information to find social support or do reparative work on our social ties.

But being more in touch with our loneliness sensors helps us use the healthy version of alone time. You wouldn't be ashamed of needing water when thirsty, so why should you feel bad about feeling lonely? What's more, we might have more control over how connected we feel with others than we think we do. Yale psychologist and research scientist Emma Seppala found that “a sense of connection is internal.” Meaning, if you can feel connected with loved ones even when you're not around them, you can still feel socially connected. Seppala's work has found people can boost this internal sense of connection by volunteering, taking care of themselves, or reaching out for help when they do feel lonely.

In fact, according to research by marketing professor Rebecca Ratner, people tend to underestimate how much they will enjoy a solo activity. But it's worth a try, even just once. Dining out alone can inspire its own romanticism. Bringing a book to a coffee shop is a gift. Taking a solo hike allows you to observe things more closely than you'd ever done when hiking with a companion.

Staying committed to a creative project is a beautiful solitude style. So are activities that make you feel connected with others—like writing letters to a loved one or even practicing a loving-kindness meditation.

Solitude is like any other social interaction. Sometimes brunch out with friends is all laughs, and the energy is just right. But other times someone complains a little too much about their job or their ex, and the vibe is off.

But when you carve out delicious moments for just you—taking yourself shopping, hiking, roller skating, whatever it is—you get to be the sole architect of your experience. There can be a certain air of romance to it.

Keane is the supervising editor of NPR's Life Kit and author of *Party of One: Be Your Own Best Life Partner*

ILLUSTRATION BY HANNA BARCZYK

SCIENCE

Animals understand death too

BY SUSANA MONSÓ

IN 2018, FIELD RESEARCHERS IN UGANDA came across an unusual sight: a female chimpanzee carrying an infant she had recently given birth to that was affected by albinism, an extremely uncommon condition in this species that gives their fur a striking white color. The scientists were able to document the reactions of her mates when they first encountered the infant.

Instead of curiosity and care that newborns tend to elicit, the chimpanzees reacted with what looked like fear, with their fur on end and emitting the kinds of calls that signal potentially dangerous animals. Shortly after, the alpha male together with a few of his allies killed the little one. Upon his death, the behavior of the chimpanzees radically changed, and the apes, overtaken by curiosity, began to investigate the corpse, entranced by this being that smelled like a chimp but looked so different.

This tragic story is one of the best pieces of evidence we have that chimpanzees can understand death. The key here lies in their shift in attitude. What at first was perceived as a threat transformed into a fascinating object. It was as though the chimps had processed that that unusual animal could no longer hurt them. This is precisely what understanding death means: grasping that a dead individual can no longer do what they could when they were alive.

SOME SCIENTISTS WHO STUDY animals' relation to death might disagree with this conclusion. Understanding death, they might argue, implies comprehending the absolute finality of it, its inevitability, its unpredictability, and the fact that it will affect everyone, including oneself. These scientists would be in the grip of what I call intellectual anthropocentrism: the assumption that the only way of understanding death is the human way, that animals either have a concept of death equivalent to the average adult human's—or none at all.

This bias affects the field known as comparative thanatology, the study of how different

animals deal with and understand death. But it couldn't be further from the truth.

Nor is it the only bias that affects the field. What I call emotional anthropocentrism is the idea that animals' reactions to death are only worthy of our attention when they appear human-like. This bias leads researchers to look for manifestations of grief in animals; famous examples include the story of Tahlequah, the orca who carried her dead baby for 17 days and over 1,000 miles, or Segasira, the gorilla who attempted to suckle from his dead mother's breast despite already having been weaned. Don't get me wrong: animal grief is real. However, if we're looking only for mourning behavior, we may be missing most of the picture.

Think back to the chimps. They weren't mourning the baby's death. But this did not detract from their understanding of what had happened. Grief is not the only signal of an understanding of death.

In fact, there are many ways of emotionally reacting to the realization that someone died that don't involve grieving. You might react with joy if, for instance, it means you're inheriting a large sum of money. You might instead react with anger, if the deceased owed you money that you're now never going to get back. Or you might be totally indifferent, if you didn't know the person

or they meant nothing to you. Of course, all of these reactions are taboo in our societies, and we wouldn't publicly admit to having them. But this doesn't mean that they're not possible. And crucially, they wouldn't mean that you haven't properly understood what happened. The polar bear that finally manages to catch a seal might understand death just as well as the heartbroken monkey mother, even though the former thinks of it as a gain rather than a loss.

Our preconceived notions have prevented us from seeing that there are many more ways of reacting to death than what is considered politically correct in our societies. In fact, an understanding of death, instead of being a complex intellectual achievement, is actually quite easy to acquire. If we manage to get past our own all too human biases, we will see that the possible meanings of death are more diverse than we will ever know.

Monsó is a professor of philosophy and author of Playing Possum: How Animals Understand Death



**The
concept
of death is
not an all-
or-nothing
matter**

POLITICS

FORTRESS DEMO

Despite efforts at home and abroad to undermine faith in U.S. elections, this year's vote is set to be the most secure and reliable ever. Thank new laws, fail-safes, and courageous election officials

By Barton Gellman

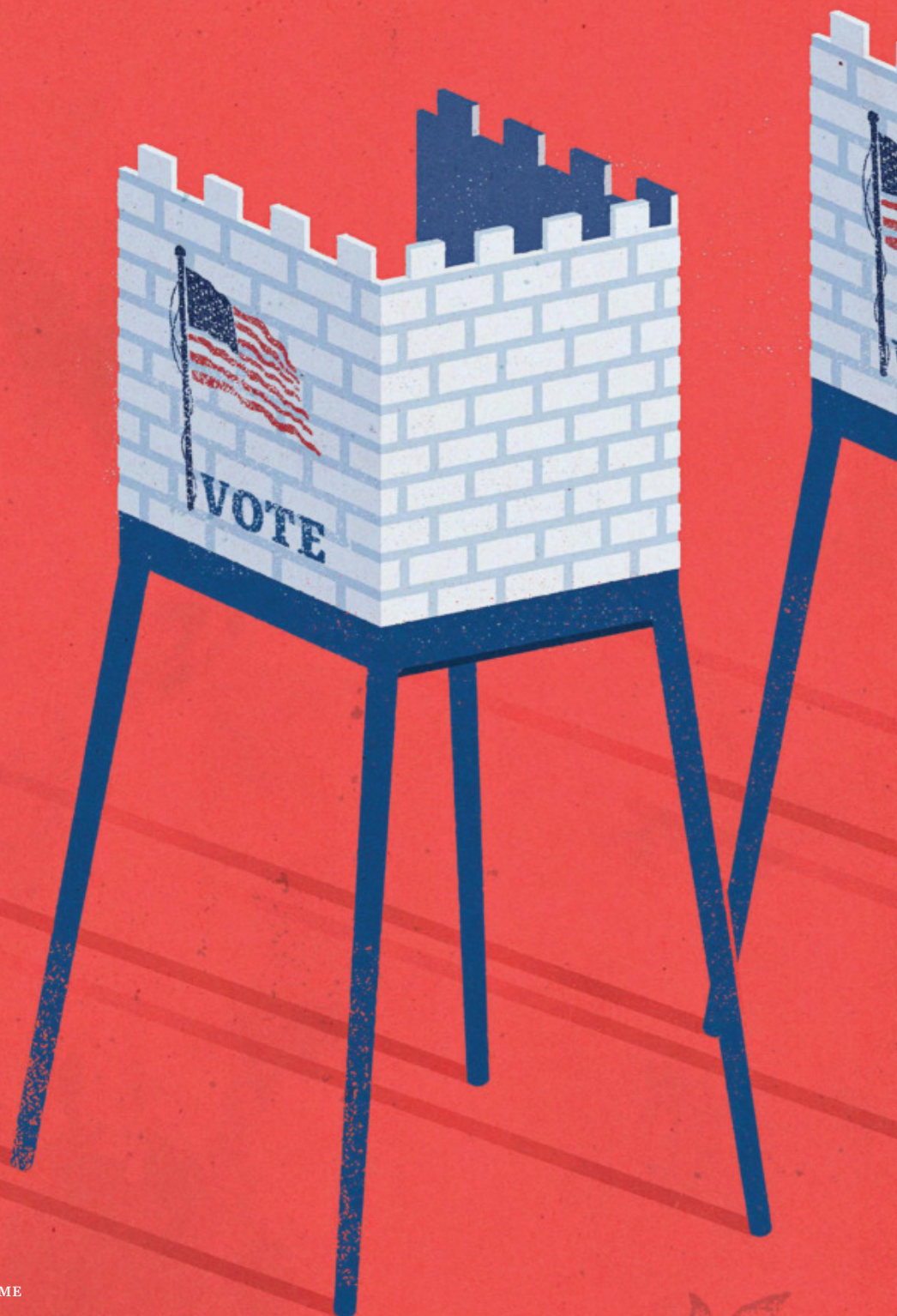
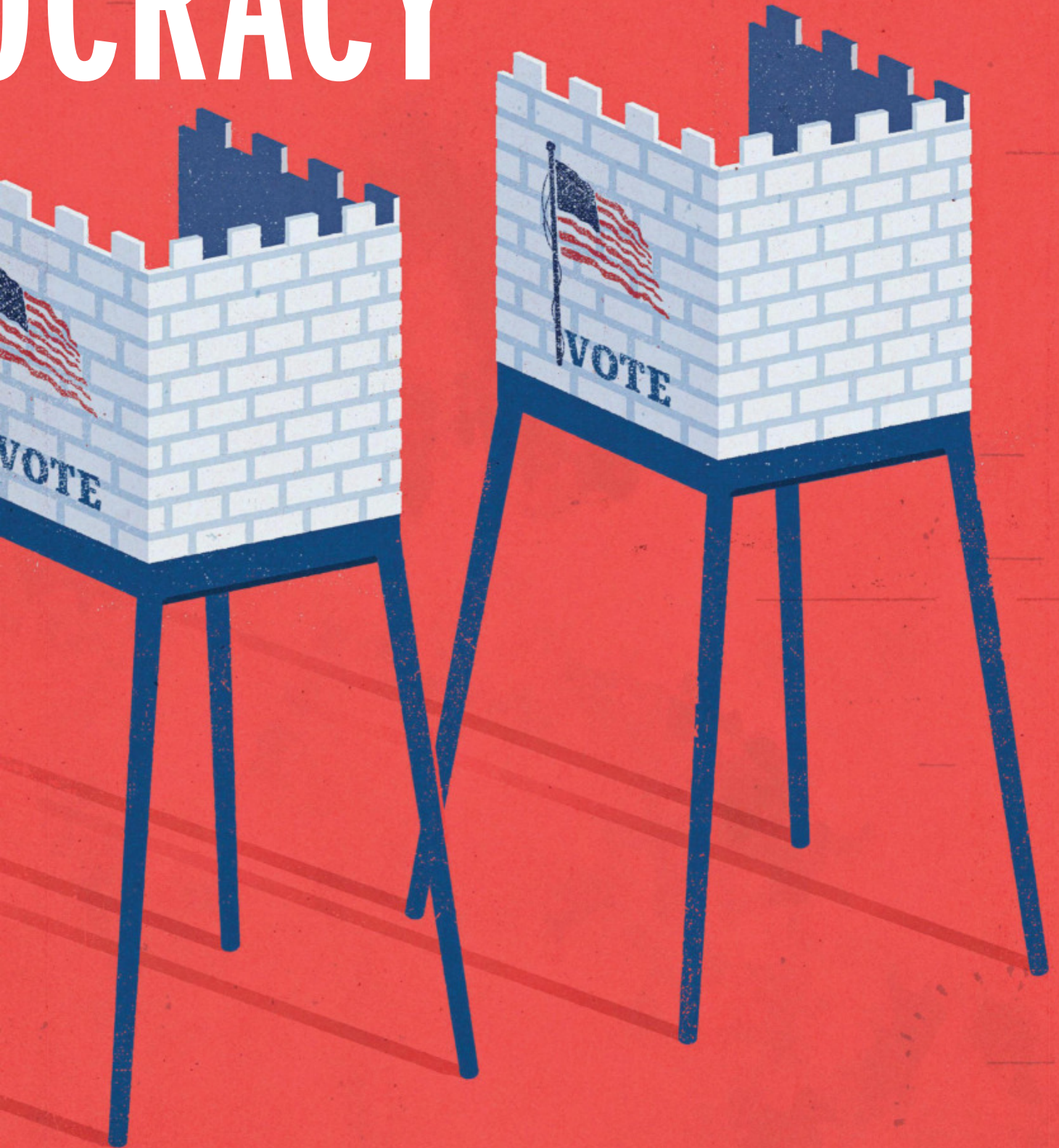


ILLUSTRATION BY RICHARD MIA FOR TIME

OCRACY



AS NOV. 5 APPROACHES, FORMER PRESIDENT DONALD TRUMP HAS LEFT LITTLE ROOM FOR DOUBT ABOUT HIS INTENTIONS. HE WILL ALMOST CERTAINLY DECLARE VICTORY ON ELECTION NIGHT, AS THE VOTES ARE STILL BEING COUNTED.

He may turn out to be right. But if Vice President Kamala Harris wins, Trump will reject the result as corrupt and launch a scorched-earth campaign to overturn it.

This plot is so well telegraphed that it barely counts as a prediction. Trump has stated repeatedly that he cannot lose unless there is “massive fraud”—and, separately, that the election is “rigged,” with a “bad voting system.” As he told the Fraternal Order of Police on Sept. 6: “We win without voter fraud, we win so easily.” Voters, by that reckoning, can make no other legitimate choice. That upside-down view of elections may still have the power to shock, but after Trump’s response to defeat four years ago it cannot be called surprising.

Perhaps one candidate will win so conclusively that no reasonable person can doubt it. But pollsters continue to assess, as they have for months, that the presidential contest is too close to call, and a narrow win in the current environment is cause for concern. Public opinion surveys show that many Americans are not sure whether to trust the machinery of elections, and many flatly say that they do not. Barely half of those surveyed in a September NORC poll said they were confident of an accurate vote count. That is nothing like a normal number, historically.

We are embarking on a presidential election in which tens of millions of Americans disbelieve the results in advance. The 2020 election, relatedly, was the only one in American history which the loser refused persistently to concede. The partisan split—close to 80% of Democrats, but just 30% of Republicans, have faith in the vote count—reflects the cumulative damage of countless lies.



As the American experiment nears its semiquincentennial, is it capable of holding a secure election with a trusted process and a widely accepted result? If the outcome is not to Trump’s liking, can democracy defend itself against another attempt to overthrow a President-elect?

Questions like these struck some readers as far-fetched when I asked them before the 2020 election in a darkly headlined story for the *Atlantic*: “The Election That Could Break America.” If then President Trump lost his bid for a second term, the story argued, the lead-up to Inauguration Day could bring a no-holds-barred struggle to prevent the transfer of power. Some of my forecasts came true: Fabricated claims of fraud. Attempts to halt the tabulation of votes. Partisan pressure to block certification. Appointment of fake electors. Incitement of violence. Desperate maneuvers in Congress on Jan. 6.

But for all it may have gotten right, the story was wrong in a deeper sense. I was uncertain that the nation’s electoral machinery could withstand Trump’s frontal assault. The system had not faced that kind of threat before. It might simply fail.

But it did not. State and federal judges threw out Trump’s baseless lawsuits and eventually sanctioned some of the lawyers who brought them. At critical junctures there were enough principled Republican office holders, none of them famous then—Aaron Van Langevelde on Michigan’s board of state canvassers, Georgia secretary of state Brad Raffensperger, Pennsylvania lawmakers Jake Corman and Bryan Cutler, Maricopa County supervisors Clint Hickman and Bill Gates—who did their legal duty in the face of crushing pressure to go along with a coup. Trump’s party recoiled, if only briefly, from the lawless violence of the mob that attacked the U.S. Capitol.

Now, four years later, I have fewer doubts about the resilience of our core exercise in democracy.

The threat remains acute. Trump, backed this time by



Republicans who have adopted his pre-emptive election denial, will try again to defy the voters if they choose Harris. He will have a great deal more help this time from the party apparatus and leaders at all levels. Vote counting in key swing states like Pennsylvania and Wisconsin could drag out, opening a window for an army of lawyers seeking to slow or prevent a definitive result. Extremists fueled by disinformation may act on the threats they have made in recent months against polling places, election workers, and other officials.

But the arc of the evidence, based on interviews with state, local, and federal election officials, intelligence analysts, and expert observers, bends toward confidence. Since 2020, the nation's electoral apparatus has upgraded its equipment, tightened its procedures, improved its audits, and hardened its defenses against subversion by bad actors, foreign or domestic. Ballot tabulators are air-gapped from the Internet and voter-verified paper records are the norm. Bipartisan reforms enacted in 2022 make it much harder to interfere with the appointment of electors who represent a state's popular vote, and harder to block certification in Congress of the genuine electoral count. Courts continue to deny evidence-free claims of meddling. The final word on vote-certification in key swing states rests with governors from both parties who have defied election denialism at every turn.

The system, according to everyone I asked, will hold up against Trump's efforts to break it.

AT THE HEART of that system are nonpartisan election officials at the federal, state, county, and local level who are dedicated to delivering a free and fair election. Poll workers will verify the identity and registration of every person who casts a ballot, in person or by mail. When polls close on Election Day, sooner in some states, election workers will begin tabulating early and mail-in ballots and in-person votes, usually on scanning

From left: Trump at an event in Lancaster, Pa., on Oct. 20; Harris at a rally in Madison, Wis., on Sept. 20

machines. As they proceed, officials will secure counted ballots, compile the results from the tabulation machines, and save worksheets and (for 98% of votes cast) paper records for official and public review. The entire procedure is overseen by poll watchers from both parties.

No human enterprise that spans tens of thousands of polling places, hundreds of thousands of election officials, and more than 150 million projected voters can aspire to be flawless, says Jen Easterly, a former Army intelligence officer who directs the Cybersecurity and Infrastructure Security Agency (CISA). "There could be a ransomware attack on an election office," Easterly says. "There could be a distributed denial of service attack on a website, so you can't see election-night reporting. Somebody will forget their key to a polling place, so they could open late. A storm may bring down a power line, so a polling place needs to be moved."

What matters, she says, is that election officials have trained for all those contingencies. "They are prepared to meet the moment and to deal with any disruption," she says. Easterly and her state counterparts play this message of reassurance on repeat, interview after interview and speech after speech. It has the virtue of being true. There really are playbooks and backup procedures and well-designed mitigation plans for every bad thing they have ever seen happen to an election, and none of those bad things pose a genuine threat to the integrity of the vote.

Easterly, a West Point graduate who oversees 3,400 employees, makes a point of talking about what could go wrong because she wants to

>
A woman holds a sample ballot on Oct. 18, the second day of early voting in North Carolina



inoculate voters against propaganda that incorporates minor incidents into a false narrative that elections are corrupt. The trouble is that Easterly and her allies are up against torrents of disinformation that are faster-propagating and incomparably more voluminous than their earnest rebuttals. And the lies are well calculated to stoke outrage and fear, while the truth “sounds like this wonky inside-baseball bureaucratic thing,” she says.

The key period for this disinformation will be the two months between Election Day and the final count of the electoral vote in Congress on Jan. 6, 2025. As they finalize their counts, the officials will send results from individual polling places to a central office by telephone, electronic transmission, or on a memory device. Election officials will then combine those numbers with mail-ballot totals and begin posting publicly available results. Media organizations will assess the partial results, alongside exit polls, and predict winners and losers in key races and states. The Associated Press, relying on an army of reporters at polling places and election offices, will produce the most widely credited unofficial count.

But several battleground states, like Pennsylvania and Wisconsin, do not start processing early and mail-in ballots until after the polls close, making a delay in results likely. In very close races, mandated recounts or the tallying of provisional ballots could delay the outcome for days. “It always

takes time, but as margins get narrower it takes longer until the media can call the races,” says David Becker, executive director of Election Innovation and Research, a nonprofit that seeks to build trust in elections. “We’ll just have to be patient and wait for that because it’s more important to get it right than get it fast.”

Foreign disinformation about the reliability of the vote is even more pervasive in 2024 than it was in the past several election cycles. Adrian Fontes, the secretary of state of Arizona, says that confidential reports from the Office of the Director of National Intelligence have convinced him that malicious foreign-influence operations are accelerating this year. They “make us hate one another so much that we internally tear ourselves apart or we make enemies out of ourselves,” he says.

A senior U.S. intelligence officer, speaking on condition of anonymity, says the Biden Administration made a conscious decision to expand distribution of bulletins from the Foreign Malign Influence Center, an office that reports to the Director of National Intelligence (ODNI), to help state and local election officials respond to an active threat. The governments of Russia, China, and Iran, according to an ODNI public update, are likely to call “into question the validity of the election’s results after the polls close.” Russia is doing what it can to help elect Trump, as it did in 2016 and 2020, according to ODNI, while Iran, enraged by Trump’s 2020 decision to assassinate Major General Qasem Soleimani, chief of the country’s Quds Force, is backing Harris. According to the senior U.S. official, China is not trying to boost either candidate but is making “broad efforts aimed at undermining trust in U.S. democratic

Key dates for the Electoral College

By Brian Bennett

NOV. 5, 2024

Election Day

Polls close. In most states, the popular vote determines whom all of a state’s electors will ultimately support. (In Nebraska and Maine, the electors can be split.)

BY DEC. 11, 2024

Ascertainment

Once the results are certified, each state’s executive—the governor in most cases—signs “certificates of ascertainment” formally appointing that state’s electors.

DEC. 17, 2024

Electors vote

Electors meet in each state and cast votes for President and Vice President. Their votes are recorded and sealed to be sent to the Senate and the National Archives.

processes and exacerbating divisions in our society.”

For all the foreign interference, Fontes, a Democrat, sees a graver problem originating from within. Like his counterparts around the country, of both parties, he names no names. “What I think is our biggest threat,” he says, “is the fact that we still have elected officials and candidates who are lying to our voters about the integrity of our elections, who are continually pushing out these stupid lies about fraud and non-citizen voting and all of this other unsubstantiated garbage.” He fears that “it’s working, sadly, because a lot of people can’t see through the bullsh-t.”

TRUMP IS PUTTING almost as much effort into discrediting November’s election as he is into winning it. This time, unlike 2020, he has well-funded and well-organized support for that effort from the Republican National Committee and state parties, allied think tanks, and dark-money operations. Together they are preparing the postelection battlefield for a sustained campaign in courts, in state legislatures, and in Congress to overturn a Harris victory by any available means. Trump campaign spokespeople did not reply to questions about why he is attempting to undermine public trust in the election and whether he will try to reverse the results if Harris wins.

“We are in an election unlike any other,” said Wendy Weiser, vice president for democracy at the Brennan Center for Justice, where I am a senior adviser. “The attacks that we are seeing on the election this year are much more widespread, much better funded, much bigger than we’ve ever seen before, much more sophisticated.”

What Trump lacks in 2024 are the powers of an incumbent President. He cannot send troops or law enforcement officers, as some allies suggested he do last time, to seize voting machines. He has no Justice Department to draft a letter to legislators in a state that he lost, falsely advising them that the department has “identified significant concerns that may have impacted the election” and hinting that they should support “a separate slate of electors representing Donald J. Trump.”

But even out of office, Trump is wielding presidential

power prospectively to benefit his campaign—by announcing to supporters and opponents what he will do for them, or to them, if he returns to office. He has frequently promised pardons for the “political prisoners” convicted of storming the Capitol on Jan. 6, another of his hints that violence on his behalf may be rewarded. In September, in a Truth Social post, he warned that “WHEN I WIN, those people that CHEATED will be prosecuted to the fullest extent of the Law, which will include long term prison sentences.” He specified among his targets “Corrupt Election Officials,” along with “Lawyers, Political Operatives, Donors, [and] Illegal Voters.” Describing Harris and her support-

ers as “the enemy from within,” he said on Oct. 13 that the enemy “should be very easily handled by, if necessary, by National Guard, or if really necessary, by the military.”

Trump’s public disinformation campaign has been amplified on Elon Musk’s social media platform X, a boost that the former President did not have in 2020. It has also been reinforced by more than 90 lawsuits brought by the Trump campaign, RNC, and other supporters to disqualify voters, prevent the counting of votes, or shorten the duration of counting, among other goals. The lawsuits, which already far

exceed the number filed in the 2020 election cycle, are concentrated in the seven swing states expected to decide this year’s contest: Pennsylvania, Michigan, Wisconsin, Arizona, Nevada, North Carolina, and Georgia.

“President Trump’s election-integrity effort is dedicated to protecting every legal vote, mitigating threats to the voting process, and securing the election,” says RNC spokeswoman Claire Zunk in an emailed statement. “While Democrats continue

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—ELECTIONS EXPERT
DAVID BECKER

DEC. 25, 2024

Electoral votes arrive
The President of the Senate and the Archivist must receive the electoral votes by the fourth Wednesday in December—this year that falls on Christmas Day.

JAN. 3, 2025

House and Senate convene
The newly elected House and Senate convene at noon on Jan. 3. If the Senate has not received a set of certificates on time, they can be requested from the Archivist.

JAN. 6, 2025

Counting the electoral votes
As president of the Senate, the sitting Vice President presides over the Electoral College vote count, announces the results, and declares who has been elected.

their election interference against President Trump and the American people, our operation is confronting their schemes and preparing for November.” As an example of “attacks on election safeguards” that the RNC fought in court, Zunk cited efforts by Georgia Democrats to extend the voter-registration deadline in parts of the state that were hard-hit by Hurricane Helene.

Many of the Trump-aligned lawsuits seem poorly tailored to prevail at trial—demands for purges of voter rolls, for example, filed after the relevant deadline. Some of the litigation could be seen as an attempt to borrow the authority of a court proceeding for thinly supported allegations of fraud to be levied if Harris wins. Several observers see another dark strategy in the current lawsuits and the preparations for others. While the vote-counting system is resilient and reliable, it must meet several immovable deadlines.

By Dec. 11, top state officials, in most cases the governor, must certify the election results. Members of the Electoral College must vote on Dec. 17. Under the U.S. Constitution, if any states remain contested when the votes are counted in Congress on Jan. 6, and neither candidate wins a majority of the electors, the decision would go to the newly elected House of Representatives. There Trump would likely prevail, thanks to the 12th Amendment’s requirement that each state cast one vote and the fact that Republicans are likely to outnumber Democrats in a majority of state delegations.

Georgia has been a focus of GOP maneuvering to delay or deny certification of the voting results if Harris prevails. After Raffensperger, the secretary of state, refused to alter Georgia’s 2020 vote count in Trump’s favor, Trump tried to defeat his re-election bid. When Raffensperger won his race anyway, the Republican legislature removed him from the state election board and appointed three election deniers to form a new majority.

Trump praised the new board members by name as “pit bulls” for “victory.” They passed new rules that, among other things, would empower partisan county officials to reject election results that they believed to be tainted by fraud. A state judge voided all the new rules on Oct. 16. The board also attempted to reopen a closed investigation that might enable them to fire and replace the officials who oversee elections in Fulton County, a Democratic stronghold that includes most of Atlanta.

According to a high-ranking state official, Trump allies on the election board encouraged their county counterparts to refuse to certify election results if they suspected any irregularity in the conduct of the polls. By blocking certification, the state official says, Trump’s allies were looking for a way, if Harris wins the state, to prevent the delivery of Georgia’s 16 electoral votes to Congress. On Oct. 14, Fulton County Superior Court Judge Robert McBurney put a stop to those efforts, ruling that county election officials may not “refuse to certify or abstain from certifying election results under any circumstance.”

Immediately after that ruling, according to another Georgia official who spoke on condition of anonymity, lawyers representing the Trump campaign and the state GOP asked

Raffensperger’s office to rewrite the official certification form. One of the lawyers, Alex Kaufman, had been on the telephone line on Jan. 2, 2021, when Trump demanded that Raffensperger “find 11,780 votes” to reverse Joe Biden’s victory in Georgia.

What Kaufman wanted this election, the officials said, was for Raffensperger’s office to remove the words “true and correct” from the description of the count on the certification form that election-board members have been ordered to sign. They said Kaufman also requested the addition of separate signature lines for board members who wish to convey their dissent, with room for them to specify the precincts in which they object to the count. “All of this is about creating doubt,” the second Georgia official says.

“And if you view it from that lens, they don’t necessarily need a county to vote down the certification. They just need some sort of doubt to be on record that they can point to, to dispute the results.”

Raffensperger, in an interview, notes that he has sole authority to certify the state election. And he sounded delighted, all in all, by his removal from the Trump-aligned election board. “I’m not the chair of the mess” anymore, he says. “It’s not my monkey. It’s theirs. It’s up to them to fix it, or a judge will do it for them.” Judges have done so elsewhere. In Arizona’s Cochise County,

two election supervisors were indicted last November for refusing to certify a 2022 vote there. On Oct. 21, one pleaded guilty to failing to perform her duty as an election official.

One significant obstacle for Trump, if he tries as he did in 2020 to arrange for “alternative electors” in states he loses, is that he would need active collaboration from a governor to throw out a state’s popular vote. Reforms to the Electoral Count Act give governors the presumptive power to decide which electors represent their states. Five of the battleground states this year—Pennsylvania, Michigan, Wisconsin, North Carolina and Arizona—have Democratic governors. Trump’s prospects with the two GOP swing-state governors do not look much better. In Georgia, Governor Brian Kemp refused Trump’s demands in 2020 to convene state lawmakers to overturn Joe Biden’s victory. Nevada Governor Joe Lombardo, a Trump supporter, has nevertheless distanced himself from the six fake electors who face felony charges after trying to substitute themselves for the state’s lawful Biden electors four years ago.

Like election officials in other states, Raffensperger described a long list of recent improvements in the reliability and security of

**‘WE’RE TRYING TO
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AND WE DO THAT
WITH FACTS.’**

—GEORGIA SECRETARY OF
STATE **BRAD RAFFENSPERGER**



< An early-voting station in North Carolina on Oct. 17

voting in his bailiwick: citizenship verification, photo ID, “the cleanest voter list in the country,” a new technology vendor to “audit 100% of the ballots” using human-readable paper records. As for the ubiquitous accusations of fraud, he says, “We’re trying to head them off at the pass. Trying to get ahead of the curve. And we do that with facts.”

THE SPECTER OF PHYSICAL CONFLICT around this election cannot be dismissed. Intimations of violence are regular features of Trump rhetoric, and many of his supporters may be angry enough to respond. The University of Chicago’s Robert Pape, a longtime student of political violence, reported that 6% of respondents in a September survey agreed that “use of force is justified to restore Donald Trump to the presidency.” Notably, he says, an additional 8% agreed that “the use of force is justified to prevent Donald Trump from becoming President.”

Indeed, would-be assassins twice made attempts on Trump’s life this summer. Although no partisan motive for either has emerged, Trump and his allies blame the assassination attempts on accusations from Biden and Harris that he is a “threat to democracy.” But Trump’s political language, Pape and other political scientists say, is qualitatively different from that of the Democrats. He has called his political opponents “vermin” and “human scum,” predicted a “bloodbath” if he is not elected, hinted that execution would be justified for the former Chairman of the Joint Chiefs of Staff, and lavished praise on violent supporters who assaulted police at the Capitol. Pape described the survey respondents who say they support violence as dry kindling, awaiting a spark. “It is generally leaders on one side of America’s par-

tisan divide,” he said, “who are lighting rhetorical matches.”

Election workers and officials are disproportionately on the receiving end of intimidation, doxing, and abuse. In September, Attorney General Merrick Garland described an “unprecedented spike in threats” against them. A recent Brennan Center study showed that 38% reported that they had been threatened, harassed, or abused because of their job, and 54% stated they were concerned about the safety of their colleagues and staff.

One state election official, explaining her insistence on anonymity, says, “I cannot emphasize this enough. I hate being quoted because every time my name gets out there, I get really nasty death threats. Because I’m a woman, they tend to be a little bit more graphic than the death threats that [her boss] gets, and it is jarring.” Asked for an example, she replies, “It’s always rape. Every single time it’s rape.”

Maricopa County Recorder Stephen Richer has stood at the white hot center of Arizona’s defense against election denial since 2020, and says he sees it gathering momentum again now. “There were some pretty dark moments,” he says, when he had to take daylong breaks away from his phone, doing “grunt labor” to clear his mind. Richer strikes competing notes of exhaustion and perverse pride that he holds the state record, as far as he knows, for death threats that have led to criminal charges. (The number is five.) The defendants have come from California, Missouri, Virginia, Alabama, and, most recently, Texas. One caller, Richer says, promised to kill him and his kids for stealing the election from Trump, saying “Children aren’t off limits.” (Richer has no children.) He also, Richer recalls, said: “I want to throw that Jew in an oven so badly, I can taste it.”

Richer is not sure how well the justice system’s response to these threats is working. “Somebody sends you a grotesque voice message to your personal cell phone,” he says. “You report it. And then what is your reward? You have to go, you know, get prepped for trial. You have to respond to subpoenas. And then you have to fly to Missouri at the

beginning of December to get, I don't know, examined in trial and have to face the jackass who said this." MAGA Republicans put up a candidate to challenge Richer and successfully ousted him in a primary this summer. The current presidential election will be his last, and he won't miss the stress of running the next one. "I'm worn out," he says.

Other veterans of the election-disinformation wars are sticking it out. Pennsylvania secretary of state Al Schmidt, like Richer a Republican, became the target of persistent, personal attacks by Trump when he supervised 2020 election operations in Philadelphia. He found it shocking then. Now he has become inured. "There is a big difference between this election cycle and 2020," he says. "In 2020, all of this ugliness was new. Election officials had never been portrayed as combatants before. So I think one unfortunate advantage to this election cycle is people are, election officials are fully aware of the level of scrutiny and likelihood of reckless accusations that might come their way."

Schmidt adds: "I think everyone that I know, everyone that I've met, isn't going to let any of that [get] in the way of them doing their job." But that is not entirely true, he admits. "Since 2020, Pennsylvania has lost more than 80 senior-level election officials. We only have 67 counties," he says.

Neither violence nor the threat of it is likely to have any meaningful impact on the vote count. Since 2020, state and county officials have taken extensive steps to build in layers of security. In Maricopa County, the tabulation center is now surrounded by a sturdy wall, guarded by law-enforcement teams, and surveilled by drones. In Durham County, North Carolina, says elections director Derek L. Bowens, "we also activate our emergency-response center on Election Day and we have patrols of polling locations." Staff members in every precinct will wear an "alert badge" that summons help at the press of a button. Police officers in all 50 states will be carrying pocket guides to election law, and law-enforcement groups like the National Sheriffs Association are teaming up with election officials for contingency planning.

Law enforcement has already been cracking down as part of an effort to deter violence. More than half of the 700 threats cases brought by the U.S. Department of Justice in the past two years have been for threats against federal and state public officials, judges, prosecutors, law-enforcement officers, and election workers, according to public statements by Deputy Attorney General Lisa Monaco. Also an effective deterrent, law-enforcement officials hope, are the convictions of more than 1,000 people for their roles in the riot at the Capitol. One received a sentence of more than 20 years in prison.

TRUMP COULD WIN this election outright. Absent that, if he has any path to return to power against the will of the voters, it would rely on an improbable decision by Congress or the Supreme Court to discard the results from one or more states that Harris wins. If those electoral votes are not counted,

leaving neither candidate with 270, Trump's allies could call for what's known as a "contingent election" decided by the newly seated House. Alternatively, if Republicans win both the House and the Senate, they could attempt to certify Trump's victory with fewer than 270 electoral votes, provided that he had a majority of the electoral votes that had not been thrown out.

But these scenarios, and others like them, are remote. One way or another, every election administrator I spoke with agreed, voters will be verified and cast their ballots. The ballots will be counted as cast and audited with paper records. The canvass will be certified, even if a partisan election board tries to balk. The popular vote in every state will control the appointment of electors. Congress will certify the electoral vote, with clear new rules laid out in statutory reforms enacted into law in 2022. And nothing will prevent the only outcome that our constitutional democracy can abide: the winner of the election will be sworn in as the 47th President on Jan. 20, 2025.

Meanwhile, the assault on truth will continue unabated in the ceaseless effort by Trump—in parallel with hostile foreign powers—to sow chaos in our electoral system and undermine faith in the results. "We know it's a psyops campaign," says Fontes, the Arizona secretary of state. "We've known that since 2016. This is an intentional erosion of the binding force of society in the United States of America."

Easterly, whose predecessor at CISA was fired by Trump for calling the 2020 election secure and accurate, says, "It is incredibly irresponsible for anyone in a position of power to call into question the security or the integrity or confidence in our elections," she says. "They really are acting as instruments of our foreign enemies." The only solution she can envision is for everyone "to come together as Americans in a united way and resist these foreign malign adversaries who very clearly want to weaken our nation," she says. "And it is up to all of us not to let them."

Democracy, after all, gives more than one power to the people. We not only cast our ballots but exercise our judgment when exposed to the lies of a psychological operation. We don't have to fall for them. —*With reporting by LESLIE DICKSTEIN and SIMMONE SHAH*

Gellman, a Pulitzer Prize-winning journalist and author, is senior adviser at the Brennan Center for Justice at NYU School of Law

**'EVERY TIME MY
NAME GETS OUT
THERE, I GET REALLY
NASTY DEATH
THREATS.'**

—A STATE ELECTION OFFICIAL

Your voting questions, answered

Four years ago, tens of millions of Americans were trying to figure out how to cast a ballot in the middle of a pandemic. Many found themselves voting early or by mail for the first time.

This year, scores of U.S. voters are again taking advantage of opportunities to vote ahead of Election Day. On Oct. 15, Georgia saw its highest-ever turnout for the first day of early voting, with more than 328,000 ballots cast, according to Gabriel Sterling, the chief operating officer for the Georgia secretary of state's office.

Yet millions will still go to their local polling place on Nov. 5 to do their civic duty.

Here's what to expect on Election Day—and why the wait to find out who won may stretch out well past election night.



WHAT'S ON MY BALLOT?

A presidential election boosts turnout, but beyond Donald Trump vs. Kamala Harris, other contests await.

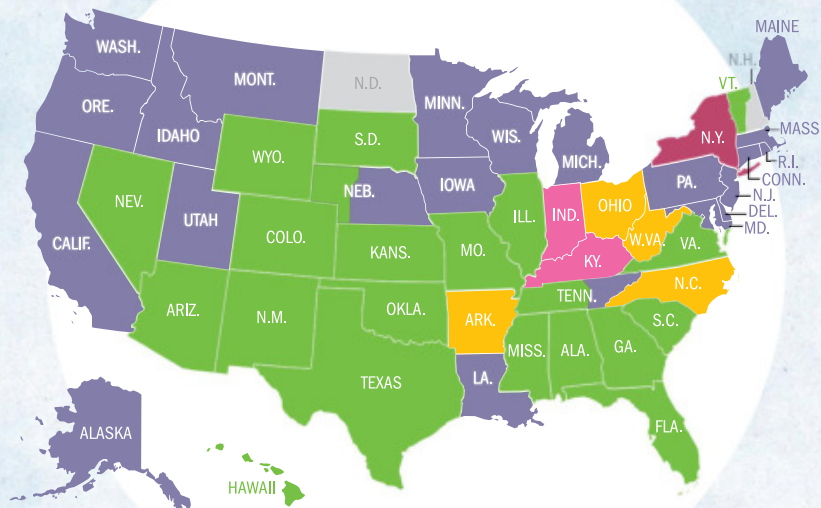
Voters will weigh in on races for Congress, as well as state and local government. Ten states—including Florida and Nevada—will vote on measures related to protecting abortion rights. Changes to the minimum wage are on the ballot in five states, including California, Alaska, and Missouri.

A sample ballot is a great tool to help prepare in advance. Many jurisdictions mail them out before voting begins. You can also look up sample ballots online at Vote.org and Ballotpedia.org.

If you'd rather go through a government website, many states—including Minnesota, Wisconsin, and New York—have their own "What's on My Ballot" pages, in which voters can enter their address and pull up a sample ballot. —R.S.

POLL CLOSING TIMES ON NOV. 5 (LOCAL)

6 P.M. 7 P.M. 7:30 P.M. 8 P.M. 9 P.M.



Polling hours vary state by state—sometimes even county by county. In most of the country, polls close at either 7 p.m. or 8 p.m.

On Election Day, if you are already in line when the polls close, you should stay in line. Voting will continue until the last person who was in line when

the polling place was scheduled to close gets to vote. If anyone asks you to leave, stay in line and call or text the Election Protection Hotline at 1-866-OUR-VOTE (687-8683), which is nonpartisan and will have trained volunteers standing by to help.

—Rebecca Schneid

GA, MOSTLY 7 P.M., BUT 8 P.M. FOR MUNICIPAL GENERAL ELECTIONS IN CITIES 300,000 OR LARGER; NEB, 8 P.M. C.T.; 7 P.M. M.T.; TENN, 8 P.M. E.T., 7 P.M. C.T.; N.D. VARIES BY MUNICIPALITY FROM 7 P.M. TO 9 P.M.; N.H. VARIES BY MUNICIPALITY

WHY SOME SWING STATES WILL BE DECIDED SOONER THAN OTHERS



FASTEST

Michigan, Georgia, and North Carolina all have laws that help speed up the counting process. In Michigan, election officials can begin processing mail ballots eight days before Election Day. North Carolina starts five weeks before Election Day. In Georgia, mail-in ballots are counted as soon as they are received.



SLOWER

Pennsylvania and Wisconsin prohibit the processing and verifying of mail ballots before polls open on Election Day. This could mean a significant wait in those states as election workers count and verify a large backlog of ballots. In 2020, it took four days for election results to be called in Pennsylvania.



SLOWEST

Most voters in Arizona and Nevada vote by mail. In Arizona, many wait until Election Day to drop off ballots in person, creating a backlog. Nevada accepts mail ballots postmarked by then for up to four additional days. Both may be among the last to provide a clear picture of the outcome, particularly if a race is close. —Simonne Shah



*Colombia's President
Gustavo Petro at an
International Workers
Day march in Bogotá
on May 1*



WORLD

THE PETRO STATE

*Colombia's first leftist leader
wants to end oil*

BY JUSTIN WORLAND/BOGOTÁ

LAST YEAR, COLOMBIAN PRESIDENT GUSTAVO Petro watched in dismay as a political and economic crisis unfolded on the other side of his country's eastern border. Global powers had imposed sanctions on Venezuela's oil exports after the country's autocratic leader, Nicolás Maduro, allegedly rigged his re-election. As hyperinflation fueled turmoil, millions of refugees poured into Colombia to escape.

In the heat of the moment, Petro decided to talk to Maduro about an idea: the leftist strongman should propose a climate pact with the country's opposition leaders to wean Venezuela off oil. That could boost the economy by ending its dependence on oil exports, Petro said, and it could help mend the country's broken politics. Most of all, it would save the world from the climate change that would result from Venezuela fully exploiting its oil.

The response: crickets. "I have mentioned it to Maduro, I have mentioned it to the opposition when I can talk to them," a chagrined Petro told me in August. "But I think I am speaking another language when I talk to them."

When it comes to climate change, Petro dreams big, even if it scares many in Colombia and threatens the country's short-term economic interests. The former guerrilla turned climate crusader took office as President in 2022 promising to phase out fossil fuels, no small project for a nation where more than 50% of exports come from oil and coal. In office, he has stopped approval of new drilling and constrained the state-owned oil company even when deals promised big returns. Abroad, he has pushed other leaders to create their own phaseout plans. "I want to take the step to end coal- and gas-based energy," he told me.

In the course of two interviews, one at the COP28 climate conference in Dubai and another

PHOTOGRAPH BY DIEGO CUEVAS

at the Casa Nariño presidential palace in Bogotá, Petro described climate change as central to his agenda. “I consider it as a prism. Every public policy can be viewed through that prism,” he says. “You can measure public policy by whether it exacerbates or mitigates the crisis, and make decisions based on that.”

But quitting fossil fuels in a country whose economy relies on them is ... complicated. Petro’s agenda, and the uncertainty that it has created, has contributed to skepticism from investors globally. That has made financing projects to supplant fossil fuels harder and contributed to the view that Petro’s idealism is hurting the country. In polls, more than 60% of Colombians say they don’t approve of his tenure. “What’s going on in Colombia is beyond ideology,” says Iván Duque Márquez, a former President of Colombia who has become a leading global voice on climate and nature conservation. “Our people are afraid that he’s going to wreck the energy market.”

His supporters say Petro is stating the realities of climate science plainly as they are. Indeed, the world needs to end its addiction to fossil fuels—and fast. Petro’s efforts reflect that urgency, they believe. But with two years remaining in his term, the Colombian President’s radical approach faces a difficult reality: to enact his agenda, he needs to work with the market. And that will require more than bold vision.

THE JOURNEY from the first police checkpoint outside the Casa Nariño to Petro’s office is formalities followed by formality: multiple security stops and ID scans, then hold in an ornate room with servers bringing fine Colombian coffee. Inside Petro’s office, the atmosphere is strikingly different. Papers haphazardly cover the tables. A graphic novel sits below some official-looking documents. Another pile of books includes one offering an economic assessment of “crime as a profession.” A side table is stacked with yet more papers and a bag of coffee beans.

The President enters the room, dressed casually in jeans and a blazer. Bespectacled and slightly disheveled, he has less the air of a politician and

more that of a wizened college professor. Widely known, and derided, for being a prolific tweeter, he remains engrossed in his phone for several paces, before looking up to greet me.

Suffice it to say, Petro is not a typical head of government. Where his predecessors made their names aligning with Colombian elites, Petro acted as a renegade and started his own political party. And where others speak in pithy talking points, he tends to long, winding answers filled with academic vocabulary. More than anything, Petro stands out because he rose to prominence as a guerrilla.

In his 2021 autobiography, *One Life, Many Lives*, he paints his transformation from bookish university student to rebel as one of patriotic duty. In 1970, after more than a decade of a power-sharing agreement that saw the country’s two long-standing parties essentially rotate the presidency without any real opposition, allegations of fraud generated widespread civil unrest. Petro was keen to join in as the militant group M19, which was formed in response to the contested election, rose in influence in the years that followed. His inspiration came not from reading Marx, he wrote, but of a “popular struggle born from the cultural values and history of Colombia.”

For roughly a decade, he worked for M19, serving as a representative in his hometown and distributing propaganda. The group, which claimed true electoral democracy as its greatest goal, was less violent than other militant groups, and Petro has said that his role didn’t involve participation in some of the group’s more extreme undertakings. Critics doubt it, but in any event, he was in prison at the time of the group’s most infamous act: an invasion of the

Palace of Justice. After the event, he advocated for the peace talks that would eventually lead to M19 becoming a political party.

His climate transformation began in 1994 in Belgium, where he moved to serve as a diplomatic attaché, continue his studies, and escape death threats that dogged him in Colombia. At the University of Louvain, he studied development and the environment, and became absorbed in the work of Nicholas Georgescu-Roegen, which linked physics, natural resources, and economics. Today, Georgescu-Roegen is known among climate economists, but his work isn’t at the center of policy discussions. Long after entering the political arena and serving as a Senator and the mayor of Bogotá, however, Petro says he still refers to his copy of Georgescu-Roegen’s most influential work for guidance.

Petro’s academic orientation is reflected in his governance style too, with a firm adherence to principles over practicality. When it comes to climate change, he says, “I have studied it more and more, trying to read everything I can, gathering literature on it.”

Petro has crafted his own philosophy of climate and economics, one that places him outside the political tradition in which he is often associated. Historically, Latin American leftists from Brazil to Mexico have relied on oil as a source of revenue to fund their social-development priorities. He sees himself as pioneering what he calls decarbonized progressivism. “The invitation to the classic Latin American left is to broaden its horizon,” he says.

The approach, in his telling, isn’t necessarily anticapitalist. He wants private-sector money to contribute to a transition away from oil and gas. But he also wants to tell that capital where to go. Just before I arrived in Bogotá, he unveiled a proposal for “forced investment” to require Colombian banks to finance his projects. A few weeks later, he backtracked and brokered a compromise with the banks.

Petro says that he is writing a book that will explore whether capitalism can address the climate crisis, but that he hasn’t been able to complete it because his other duties leading the country keep getting in the way. He says he’s

**‘HOW CAN YOU
INVEST IN A COUNTRY
WHERE YOUR
PROFITS DEPEND ON
THE MOOD OF THE
PRESIDENT?’**

—FORMER PRESIDENT IVÁN DUQUE MÁRQUEZ



not sure the reconciliation is possible. “If capitalism cannot, because it lacks planning capacity,” he says, then “humanity will overcome capitalism on a global scale because the alternative is that humanity will die with capitalism.”

ALL THIS THEORY is having a real-world impact on Colombians, especially in his approach to the country’s oil sector. Petro entered office and immediately raised taxes on oil and coal companies. He stopped new permits for oil exploration and drilling. He replaced the longtime CEO of the state-owned oil company, Ecopetrol, with his campaign manager, a political operator with experience in the country’s power sector. When I was in town, Ecopetrol nixed a \$3.6 billion deal with U.S. oil major Occidental Petroleum.

These moves carry a significant political cost for Petro, agitating those focused on short-term economic outcomes and discouraging foreign investment everywhere in Colombia. “He has made it very clear to the world that

Petro meets Brazil’s President Lula da Silva at a meeting on protecting Amazon rainforests in 2023

he is antioil, antigas, antifracking and anti-United States,” Occidental CEO Vicki Hollub told investors after Petro blew up the deal.

Petro acknowledges that others call his approach political “suicide.” But drilling more would represent a societal suicide, he says. “If Colombia’s coal reserves were used, and if Venezuela’s oil reserves were used, you couldn’t interview me again,” he says. “The world would burn. Just in the Colombian-Venezuelan subsoil, there is a weapon of mass destruction.”

Petro isn’t oblivious to the realities of oil markets, and in his telling, he is getting ahead of the problem. Colombian oil is a less desirable heavy crude and far more expensive to produce than oil from the Middle East. It’s a common view: as demand fades, as some analysts say will happen soon, expensive oil from places like Colombia will get squeezed

out early. Remaking the economy now avoids economic pain later, he reasons.

Petro’s alternative economic vision is to lean into Colombia’s natural wealth, excluding fossil fuels. He aims to attract payments to protect rainforests that make up more than a third of the country and expand the rapidly growing tourism sector. Most boldly, he wants to invest in the country’s renewable energy resources, collecting wind, solar, and hydroelectric power and shipping it across the Western Hemisphere via a pan-American electric grid. “Instead of exporting fossil energy, we would export clean energy,” he says.

In October, members of his cabinet traveled to the coastal city of Barranquilla and laid out a \$40 billion portfolio of projects designed to achieve Petro’s vision. The Mines and Energy Ministry described plans for a new energy company that will build renewables on the northern coast. The Commerce, Industry, and Tourism Ministry presented a lending program for small tourism businesses. The Environment Ministry

proposed new programs to fund biodiversity protection. “We expect, now after all of this, that this may work to help push the economic goals,” María Susana Muhamad, the country’s Environment Minister, told me ahead of the announcement.

Colombia has already succeeded in finding some money to protect nature, but in the long term replacing dependence on oil will require private finance at a much bigger scale. That leaves Petro, and his country, in a bind. He has a big vision for a prosperous, decarbonized Colombia. But so long as he’s in charge, foreign and domestic investors may remain less enthusiastic.

It doesn’t help that Petro is out of step with Colombia’s political establishment. The country has not had a left-wing President in its modern history. That has left Petro without control over the institutional levers available to many other leaders. Moreover, the combination of big talk and strained delivery only fuels Petro’s most ardent critics, including those who support climate action. Recent Presidents have promoted conservation and an energy transition. But Petro’s history as a guerrilla, a series of corruption scandals plaguing his government, and his unconventional economic leadership are endangering the country’s reputation, they say. “How can you invest in an economy where your profits depend on the mood of the President?” says former conservative President Duque. “It’s absolutely reckless.”

Even would-be allies have criticized Petro. In February, Jorge Iván González resigned as the head of Colombia’s National Planning Department at Petro’s request. In short order, he penned a column praising Petro’s vision but criticizing his unwillingness to accept the practical limitations to enacting it. “Instead of accepting the facts,” González wrote in *La República*, a Colombian business paper, “the ruler falls into the temptation of denying them.”

PETRO IS FORGING AHEAD regardless. Workers were still putting the finishing touches on the parklike grounds surrounding the 85-ft. Monumento a Cristo Rey when I arrived on an early August morning after a short plane



Truckers in Colombia protest higher diesel-fuel prices on Sept. 5

ride from Bogotá. The site in the center of the Colombian city of Cali offers a glimpse of what Petro’s vision could look like. Tourists are drawn to the eye-catching hilltop statue. Nearby land is protected, some under programs where foreign companies pay locals to preserve the land. “If we have more ecotourism in the park, that helps us protect it,” says Cali Mayor Alejandro Eder.

The city hosted a major global conference in November that aims at implementing a deal to protect 30% of the world’s land and oceans by 2030. Countries are debating mechanisms to share genetic material and formalizing financial programs. Hosting the conference gives Petro’s government a hand in shepherding the agenda of international nature conservation while also creating an opportunity to drum up international support for his domestic agenda.

Last year, Colombia partnered with Germany, Kenya, and France to explore programs that might forgive sovereign debt in exchange for nature protection and climate action, drawing the attention of multilateral development banks. He has championed the role that Indigenous people and African descendants can play addressing climate change.

And he became a key advocate on the global stage pushing for an international treaty to cut fossil-fuel emissions.

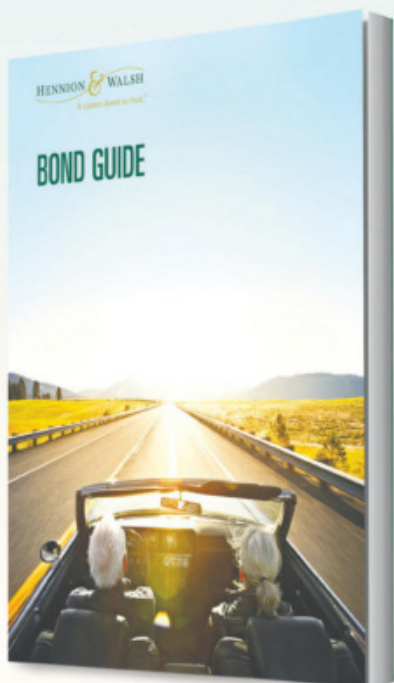
But despite some successes, he still thinks that most of his fellow heads of government have failed to recognize the scale of the problem and are offering inadequate solutions. “The Presidents come to make some prefabricated speeches that they themselves do not write, generally, that introduce what I would call a ‘correct’ policy,” he told me in Dubai. “That ‘correct’ policy is false.”

Instead of offering piecemeal solutions, Petro says he is focused on a vision to avoid what he terms “collective suicide.” There is a way in which this approach is admirable. To honestly face the conclusions of climate science is to recognize that humanity is on the brink of irreversible and catastrophic change. It’s the role of leaders to chart a way forward, no matter the tough politics.

But what good does it do if others don’t follow? In that regard, Petro is his own toughest critic. He knows people hear him, but to what end? “We draw attention in the world for this. They listen to us,” he says. “They don’t pay heed, but they listen.”

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MEL ROBBINS WILL MAKE YOU DO IT

SEVEN MINUTES OF CHITCHAT AND ONE REAL QUESTION into an interview, Mel Robbins begins to cry. Her eyes brim with tears behind her signature glasses; her confident voice gets squeaky. Here's the question: *How would you describe what you do?* Not exactly a hardball, especially for Robbins, who has an everything-must-go approach to self-disclosure. This is a woman who on her wildly popular podcast described the appearance of her aging breasts as “dirty gym socks,” and has also given listeners a letter-and-verse account of her urinary incontinence. A job description should be a light lift.

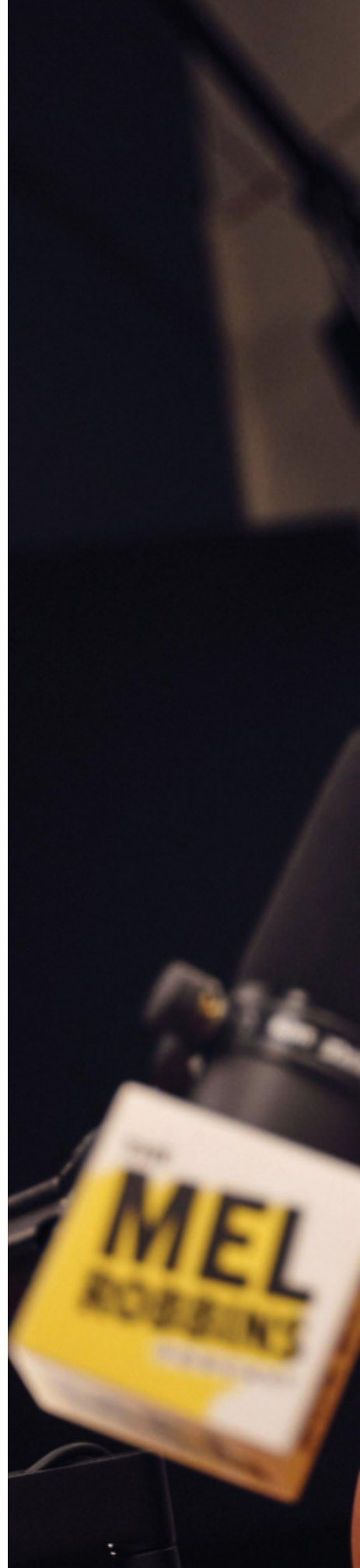
Then again, Robbins, 56, has had so many incarnations, perhaps it's complicated to sum up for a stranger who she now is. She has been a public defender, a life coach, a syndicated talk-radio host, a CNN legal analyst, an entrepreneur, a motivational speaker, a self-help author, a daytime talk-show host, and now a luminary of the podcast world and mini media tycoon. She has also, famously, been \$800,000 in debt. Her high moments have been giddy and her lows desperate.

Robbins' style, trained as she is for radio, where silence is referred to as “dead air,” is to keep talking until she figures out what she wants to say. She tries to describe what she does in several different ways. “I think a lot about the magic of taking a walk with a friend,” she says, as she chokes up. “When you take a walk with a friend, you feel better.” Switching to business terms, she explains how she's trying to transform that friend-feeling into content: “I've built a production and media company that focuses on the human experience.” As she regains her composure, she adds, “I am on a mission to find as many stories and pieces of science and research and tools that a person can use to make their life a little better.”

**HOW THE
PODCASTER
AND AUTHOR
ROSE TO
THE TOP
BY STATING
THE OBVIOUS**

**BY BELINDA
LUSCOMBE
/ BOSTON**

**PHOTOGRAPH BY
CODY O'LOUGHLIN
FOR TIME**





◀
“I’VE JUST BEEN
SHARING MY
LIFE AND WHAT’S
WORKING FOR ME,”
SAYS ROBBINS,
AT HER BOSTON
STUDIO, OF HER
PODCAST’S RISE

Finally, she jumps ahead to the question that lies underneath the question, the one that eventually all motivational gurus (a term she hates) like Robbins face. “The hardest thing about what I do is that oftentimes the advice and the tools sound dumb or repetitive,” she says. And there it is, the real truth of Mel Robbins, disclosed by herself. She is the queen of stupendously obvious advice, the psychological equivalent of a doctor who suggests you try breathing in *and* out. But—and here’s the amazingly simple hack that you won’t believe really works!—people listen to her and attempt to do what she suggests. “I spend a lot of time thinking about how I make this information that you’re going to care about, information that you’re going to connect to, and information that you’re going to trust enough to try,” she says.

Her best-selling book, *The 5-Second Rule*, is about motivating yourself to do something by counting backward from 5 and then doing it, much as one might encourage a reluctant child. Her second-best-selling book, *The High 5 Habit*, coaches people to look at themselves in the mirror in the morning, think about what they have to do that day, and then literally high-five their reflection. It has more than 6,000 five-star reviews on Amazon, many of them calling it transformative. And in December she will release a new book, *The Let Them Theory*. The premise of this one—already hovering at the top of Amazon’s best-seller list—is, pretty much, that people will be happier if they quit trying to control other people.

If you’re thinking these insights seem like thin gruel on which to nourish a media company, Robbins in some ways agrees with you. She’s fully aware how basic they seem. What Robbins sells, however, is not just advice. She’s offering her listeners a reason to believe in themselves. On Oct. 23, SiriusXM announced it had reupped her contract in a three-year deal in which she will not only continue to produce *The Mel Robbins Podcast*, but also launch a second show in early 2025. “Every single player was in the mix for the next ad-sales deal,” Robbins says, “and we were told by three different groups that based on the numbers, this is the single fastest-growing podcast they’ve seen.”

Since the first podcast was launched a mere two years ago, more than 187 million episodes have been downloaded and it has spread to 98 countries. People have spent 22 million hours watching it on YouTube, where she has 3 million subscribers. She has 6.5 million followers on Instagram, 2 million on TikTok, 2.5 million on Facebook, and six audiobooks that have hit No. 1

on Audible. At the end of 2023, her podcast was named the fifth most followed on Apple’s charts, prompting the Kelce brothers (whose podcast was third) to give her a shout-out.

Robbins has become the voice in people’s heads—often literally, since many listen on earbuds—encouraging them to keep going, insisting that they can do it, and shouting down the murmurs of self-doubt. In every podcast she says the same thing: “In case anyone hasn’t told you today, I love you,” a line that’s so corny it could be distilled into ethanol. And yet because it comes from her, people drink it up like syrup.

THE MORNING TIME VISITS her book-lined Boston studio, Robbins, wearing a cool but relatable ensemble of black shirt, jeans, and Air Jordans, is interviewing Dr. Aditi Nerurkar, an author and physician at Harvard Medical School who specializes in stress. Nerurkar is talking about the difference between hedonic happiness and eudaemonic happiness. She’s expounding on “horizonlessness” where young people can’t get their bearings. Robbins repeats what Nerurkar says, synthesizing it and trying to find a practical application, all while blowing sunshine the doctor’s way. She’s interviewer, translator, therapist, and cheerleader.

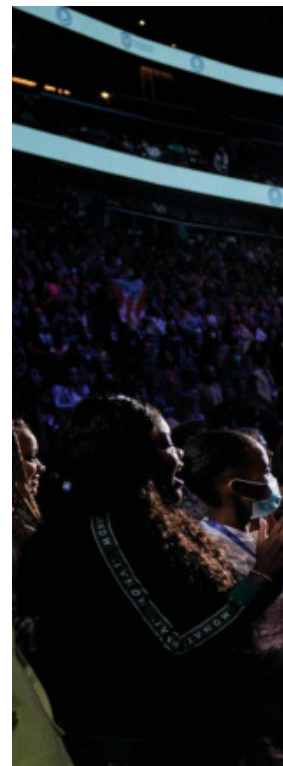
Toward the end of the interview, Robbins scribbles a note on a card and draws a box around it several times. She also, she tells me later, presses a tap pad under her desk that sends a message to the mixing desk that this is the key point of the interview. “My role, especially with the experts, is really translating, clarifying, distilling, making it entertaining, making somebody that is steeped in their research relatable and human, so that somebody listening to them doesn’t feel less than or dumb.”

Nerurkar is not just a guest; she’s a fan. “You have an uncanny gift for getting into the head of people,” she tells Robbins after the interview but before they emerge from the studio to a standing ovation from the staff. (Everyone gets that, even reporters.) “I’m sitting across from a hero.” Last time she was on Robbins’ show, her book sales blew up

like a case of hives. “You are the ultimate hype woman,” she tells Robbins. Dr. Mary Claire Haver, whose specialty is menopause, had a similar experience. Her interview with Robbins, which is now the most popular episode the show has ever done, aired a few weeks before her first

book came out. “It was like a juggernaut,” she says. “It was more powerful than anything I’ve ever done, as far as reach.” By release date, the book had presold 70,000 copies, much of which Haver attributes to Robbins.

Why does it make such a difference to people when Robbins gives the advice? Partly it’s her voice. She has a lively, smoky tone, with a lot of empathy and a hint of mischief, like a scandalous but wise aunt. Partly it’s skills honed in years of radio, where you have to keep people from changing the dial as the ads approach by dangling treats that await. Partly it’s her infallible radar for zeroing in on the one nugget in a litany of nuanced observations made by scholarly guests.



‘THERE ARE SO MANY THINGS THAT I DID THAT I REGRET, BECAUSE I JUST DIDN’T KNOW, AND I HURT MYSELF.’

—MEL ROBBINS



▲
FOR YEARS,
MOTIVATIONAL
SPEECHES FOR
CORPORATIONS
WERE ROBBINS'
BREAD AND BUTTER

A quick study, she can consume a large volume of research material and not only pull out the most compelling takeaway but also buttress her advice with findings from the academic, often neuroscientific literature. The reason it works to count to 5 backward and then go, she proposes, is that it counteracts the natural hesitation the brain engages in before doing something new to make sure it's safe. If you make a move right after the five-second window, you don't have time to overthink and get anxious.

But mostly people listen to Robbins because she tells stories. One of her most popular podcasts, about how to find out what you want, is illustrative of her methods. She spends the first two-thirds of the show sharing tales of people who are unclear about what they want. She uses whatever material she has on hand, in this case her daughter Sawyer and sister-in-law Christine Harwig. Sawyer talks about moving to New York City; Harwig wishes she had a lake house. Then, after 29 minutes, including five promo spots, Robbins demonstrates the technique of uncovering what you actually want by asking why five times to really burrow into the kernel of the desire. Her daughter wants to fulfill a childhood dream. Her sister-in-law wants more time with her teenage sons. The method takes about three minutes to explain, but a full 45 to make compelling.

BEING A CONTENT PRODUCER is a grind. Robbins throws up two podcasts a week, plus endless social media riffs. She knows how to do this from years of nattering on air and because she cooks all the parts of the chicken. A cat sleeping on her lap becomes a post about not letting other things perturb you. Falling asleep in workout clothes becomes a post about motivation. She uses the most popular of those as a guide to what might be a good podcast, and she uses the most popular of *those* as a guide to what might be a good book. The idea for *Let Them* went from a moment where she was worrying about how disorganized her son was about prom to an Instagram post and podcast so popular, says Robbins, it inspired tattoos. "What was revelatory to me is that you can't truly be in control of what you're doing until you first stop living your life as if you can control what other people are doing," she says. "When you

say, let them, you detach from trying to control that person, and then you remind yourself, let me choose how I'm going to respond to this."

She noticed echoes of the idea in Buddhism, stoicism, and the work of Dr. Robert Waldinger, the psychiatrist behind the Harvard Study of Adult Development. "It's the single best thing I've ever done," she says. "It's got everything that I look for. It is personal. It is backed by just a tremendous amount of research in science. It is so simple, you can teach it to a fifth-grader. And in a moment where you are overwhelmed by your emotions, you can remember it. And that's key, because if you can't remember what to do, you won't use the advice."

Robbins' richest vein of raw material, however, is her own backstory. Born Melanie Lee Schneeburger to a mother who left college after getting pregnant her freshman year and a father who would go on to become an osteopathic doctor, Robbins grew up in Muskegon, Mich. She excelled at school, particularly at math, was accepted into Dartmouth, "and proceeded to have from college through law school [at Boston College] eight of the worst years of my life," she says. "I had no idea that I had been struggling profoundly with dyslexia and ADHD." She was only able to keep up with the workload, she says, because her anxiety disorder made her work so hard.

She was unaware of those conditions at the time; she just knew she was miserable, drinking too much, cheating on boyfriends, and doing too many all-nighters. The memory of it brings her to tears again. "I didn't know," she says, weeping. "I didn't f-cking know. There are so many things that I did that I regret, because I just didn't know, and I hurt myself." Part of what drives Robbins, she says, is that other people might be like she was. "I feel like almost every human being has something like that that they just didn't know."

Robbins was a public defender in New York City for a few years and represented a lot of people trying to make bail. "I saw how many people don't have anybody showing up for them, and it left a huge mark on me," she says. But she didn't enjoy it, nor family law, and in 1999, after marrying and moving about an hour outside Boston, she started a business as a life coach.

Five years and two children later, her husband Christopher Robbins got laid off and decided to open his own business too, a pizza restaurant, which did well. He then opened another and another in quick succession, and there was a cash-flow squeeze, just as Robbins was having a third child and cutting back on her \$250-an-hour life-coaching sessions. The couple took on a massive amount of debt. Robbins says she had a rehearsed routine for when her cards were declined at the

grocery store. “I would cock my head a little to the left and go, ‘That’s funny, it just worked at the gas station. Hold on, I’m gonna go out to the car. Come on, kids.’ And I’d leave,” she says. But it got to her. “Never in a million years did I think at the age of 41 that I would be struggling with drinking, ready to kill my husband, just unable to get out of bed.”

Robbins, who often reminds listeners that “no one is coming to save you,” got a \$25-an-hour gig as a local morning-radio talk-show host on weekends. “It was like a lifeline to talk to people that didn’t know the sh-tstorm that was going on in my life,” she says, and she was good at it. In 2012, five years after starting in radio, she got an official job at WBDO in Orlando. “I remember our very first meeting. It was one of those great meetings,” says Drew Anderssen, the show’s then producer. “Mel wanted to be a star, and she is a star. She had a way of making people feel really good.” When Trayvon Martin was killed by George Zimmerman in nearby Sanford, Fla., in 2012, Anderssen put her on the story and the case that followed. From there CNN hired her as an on-air legal analyst.

To pay the bills, she also developed a side career as a motivational speaker and author, and got invited to speak at a TEDx event in San Francisco. At the end of her talk, “How to Stop Screwing Yourself Over,” she almost forgot to mention this little idea she had called the 5-Second Rule. She also gave out her personal email, which eventually she had to ask be edited out. The talk went viral, and she began to focus more on speaking and writing and less on TV. In 2017, she released *The 5-Second Rule*, which went on to become the best-selling self-published audiobook of all time.

WHILE THE PAST DECADE has been one of expanding successes, with an ever growing footprint on social media, bigger paydays (a reported \$100,000) for her corporate gigs, and two monster books, it’s been no cakewalk. Her namesake daytime talk show, launched with some fanfare in 2019, was canceled after just one season. “It wasn’t good,” she says when asked why it was axed. But true to Robbins’ brand, the big public failure was a learning experience. “It taught me that I need to be in control of what I’m doing,” she says. “I am not a player in someone else’s game.”

Thus her podcast is produced by her own company, 143 Studios (named after the address of an apartment in Manhattan the couple lived in), and her new book, like her previous ones, is being released through a self-publishing platform. On the day TIME visits her office, each member of the largely female staff is wearing a magnetic name tag, including Harwig, who is the CFO and COO, and Sawyer, who works in marketing.

It’s safe to say the Robbinses are out of debt now. During the pandemic, the family bought and moved into her husband’s parents’ house on a hill in Vermont. Christopher runs a men’s-retreat business, is a death doula, and is, by the looks of his Instagram, gloriously happy. Robbins wears a flashy diamond-encrusted ring, a present from her husband to mark 26 years of marriage. The last time she took Anderssen to lunch and talked about how much money she was making, he regretted suggesting the Magical Dining Month budget-price menu.

But her extremely fast rise in the podcast world has led to oversights. Recently Harwig discovered that Robbins had been scammed



▲
ROBBINS,
RECORDING IN A
HOTEL CLOSET IN L.A.
IN 2022, LOVES THE
INTIMACY OF AUDIO

out of hundreds of thousands of dollars in corporate speaking payments in an elaborate ruse that ensnared her speaking agent. (A business partner’s insurance covered it.) Robbins hadn’t noticed. “I’ve learned in running this business that I am fantastic at business development and fantastic as a creator,” she says. “I am horrendous at operations.”

Robbins believes her whole life has led her to this point. The financial difficulties, the ADHD, the public failures, the private struggles have all primed her to be a beacon pointing the way for people to improve their lives. Her studio location in Boston gives her access to a slate of world-class boffins who have done interesting research but lack the skill set to present it in a meaningful way. Her love of tech and data has helped her adapt to social media and discern what messages resonate with people. In a media race where relatability is more important than authority, her brand of empathetic imperfection is like rocket fuel. And in a world of parasocial relationships, the oversharer is queen.

Robbins cries one last time during our three-hour conversation, as she speaks of a visitor-center attendant in Iceland who recognized her voice when she asked for directions to the bathroom, burst into tears, and shared how her YouTube videos were a lifeline during a painful divorce. “Every time somebody stops me, it’s just a reminder of how that’s all you need, a little encouragement,” says Robbins, taking a moment to steady herself. “It’s really as simple as that.” There will always be people who say she just found a way to make money with extremely basic, even stupid, advice. Let them. □

TIME100 NEXT

On October 9, 2024, TIME recognized 100 extraordinary individuals representing the next generation of leadership.

Learn more about the individuals shaping the future at time.com/time100next



VICTORIA MONÉT SINGER-SONGWRITER, PRODUCER AND ENGINEER, NICOLA COUGHLAN ACTOR, WES MOORE 63RD GOVERNOR OF MARYLAND, ANNA SAWAI ACTOR, JAYLEN BROWN NBA PLAYER AND ACTIVIST

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Best Inventions

For our annual list of the year's most exciting innovations, TIME editors hunted through products and services to select 200 inventions that make the world better, smarter, or just more fun

PHOTOGRAPH BY JO WHALEY FOR TIME

Robotics

◀ **A steady surgeon****Medical Microinstruments
Symani Surgical System**

In April, the Symani surgical system, which uses wristed robotic arms with seven degrees of flexibility, became the first FDA-approved robot for micro-surgery. “The human body tremors,” says CEO Mark Toland. Robots, much less so. In Europe, Symani has completed nearly 1,000 surgeries across 17 different procedures. Up next: an AI-powered version to do common elements of operations, like tying up arteries post-procedure.

—Chris Stokel-Walker

Social good

A WAY TO DISCONNECT**Yondr Pouch**

Graham Dugoni believes that “society needs protected spaces” from cell phones. In 2014, he founded Yondr, which makes pouches that can lock phones away for a certain amount of time, such as during a concert or theater show, allowing their owners to disconnect. Today, around 70% of Yondr’s business comes from schools, whose leaders are worried about the impact of cell-phone use in class. While teachers previously had to enforce school phone bans themselves, leading to classroom conflict, Dugoni says Yondr has sparked renewed interest in no-phone schools because it offers a simpler fix. Now, about 76% of public schools in the U.S. prohibit nonacademic use of cell phones during school hours. Yondr claims millions of users across thousands of schools in 27 countries. —C.S.W.

Household

**QUICK AT-HOME
COLD BREW****Cumulus Coffee Machine**

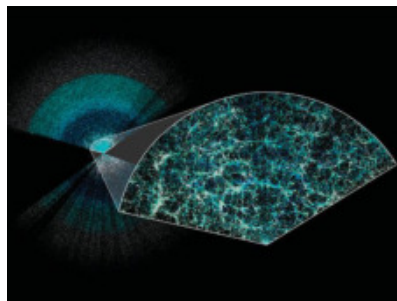
The process of making cold-brew coffee usually takes hours. But the Cumulus Coffee Machine lets you make genuine cold-brew coffee at home in under a minute. The device uses recyclable capsules of coffee concentrate, brewing them in water that its tower maintains at 34°F. It also makes cold espresso and creamy nitro brew, by drawing nitrogen from surrounding air. Because heat, which releases chlorogenic acids, isn’t involved at any point in the preparation, there’s no “bitter, acidic bite,” says Cumulus Coffee Co. founder and CEO Mesh Gelman, a former Starbucks exec. (Former Starbucks CEO Howard Schultz is an investor.) “You get a more balanced, smooth coffee experience.” —CHRIS NORRIS

Robotics

BLUE COLLAR ROBOT ▶**Agility Robotics Digit**

Finding workers for physical labor in manufacturing and logistics is getting tricky. “There’s over a million jobs open today [in the U.S.] that can’t be filled,” says Peggy Johnson, CEO of Agility Robotics. Agility’s humanoid bots, Digits, were trained by AI and are already doing tasks like lifting and organizing products for companies including Amazon, where trials were announced in 2023, and logistics provider GXO. The \$30 an hour that GXO pays Agility to use each Digit is behind Johnson’s claim that it’s the first humanoid robot being paid to work. So far, Digit works fenced off from human colleagues for safety, but Johnson hopes the bot will be working alongside humans by late 2025. —C.S.W.





Aerospace

VISUALIZING THE BEYOND *3D Map of the Universe*

Until recently, only about 2 million galaxies had ever been imaged. But in April, the documented galactic census exploded to 6 million, thanks to the biggest-ever 3D map of the universe, produced by the Dark Energy Spectroscopic Instrument (DESI), an observatory in Kitt Peak, Ariz., funded by the U.S. Department of Energy. The DESI map offers clues to the behavior of dark energy, an invisible force thought to be causing the expansion of the universe; now scientists believe it has waxed and waned over time, and may again in the future.

—JEFFREY KLUGER

Sustainability

A PLASTIC-FREE PHARMACY *Cabinet Health*

Last year, the global pharmaceutical-packaging market was valued at more than \$105 billion. That translates to a lot of nonrecyclable plastic bottles ending up in landfills. Cabinet Health's subscription pharmacy instead offers its 1 million customers prescription and over-the-counter medications (but no controlled substances) at cost in reusable, stackable glass containers. In addition, the meds are delivered in compostable packaging. "We wanted [packaging] that was exciting, that looked nice, and had a really scalable economic equation," says Cabinet Health's co-founder and president Russell Gong. Cabinet partnered with CVS and Target last year, so customers can also pick up their meds at brick-and-mortar locations. —JESSICA KLEIN

More inventions

The **Garmin HRM-Fit** heart-rate monitor clips onto a sports bra, reducing bulk and chafing.

Mo/Go by Arc'teryx and Skip provides robotic support for sore knees.

Canva Magic Studio uses AI to help beginners create professional videos and writing.

Diagnostic AI **Overjet** helps dentists detect and explain pediatric cavities.

With a vibrant color display, **Rakuten Kobo Libra Colour** is an e-reader for the graphic-novel set.

Logitech Sight, a multicam video-chat system, lets everyone in the conference room be seen.

At Ulta Beauty, the **Luum Precision Lash AI robot** applies eyelash extensions faster and more precisely than humans.

Fashion retailers Zara and Ganni have signed on to reduce waste by using Ambercycle's recycled polyester, **Cycora**.

Blueland Spring Bloom Laundry Detergent Tablets ditch the microplastics but keep the enticing scent.

Altec Lansing HydraBlast 2.0, a tough, portable outdoor speaker, is "everything proof."

Aspivix Carevix is a medical device that can significantly reduce the pain of IUD insertion.

UbiSim's widely used VR training for nurses has added scenarios with patients who are transgender.

Dreo ChefMaker Air Fryer monitors and maintains meat moisture while cooking.

Skylight Calendar Max is a wall-mountable touchscreen family calendar that syncs to parents' devices.

The **Graphene Square Cordless Transparent Cooker** bakes using half as much power as a conventional oven.

OrCam Hear are smart hearing aids that let users focus audio on one speaker in a crowded room.

Automotive

MAKING SAFER DRIVERS

Volvo Cars Driver Understanding System

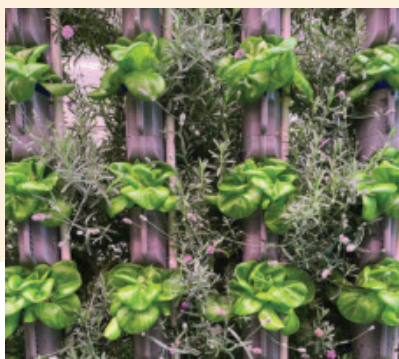
In 2022, some 16,000 people across the U.S. were killed in car crashes involving distracted or impaired drivers. Volvo makes its car exteriors safe, says Mikael Ljung Aust, senior technical safety leader at Volvo Cars' Safety Center, but it "became clear that assessing the driver's state inside the vehicle was just as critical." Thus the automaker's new system for its EX90 model: Two camera sensors monitor the driver's gaze, while a capacitive steering wheel checks that hands are on the wheel. If impairment is detected, Aust says, the car will alert the driver to take action or, failing that, autonomously stop on the side of the road and activate its hazard lights. —CHRIS STOKEL-WALKER

Food & drink

Fresher herbs

Eden Green herb program

Cramming 40 acres of farmland into one acre in its Texas greenhouses, indoor vertical farmer Eden Green this year became the first company to grow and ship a full suite of 10 herbs out of a single facility, where each herb has its own microclimate. Normally herbs come from multiple distributors and nations, raising transportation costs and environmental impact. Global sourcing can also make availability unpredictable. "No one is getting consistent supply," says CEO Eddy Badrina. The company delivers herbs farm-to-shelf in 48 hours to customers like Walmart, restaurant chain Cava, and food-service giant Sysco. —Don Steinberg

Household

A BETTER WAY TO COMPOST

Mill Food Recycler

Americans discard some 60 million tons of food annually, and only about 10% of U.S. households have access to compost collection. To help people dispose of food waste more sustainably, Mill Industries last year launched a kitchen appliance that uses a dual grinding system—powerful enough to break down avocado pits—to turn food scraps into dry grounds overnight. The newly upgraded machine looks like a sleek trash can, works quietly, and features charcoal filters so no smell escapes. "When you wake up in the morning, your scraps will look like coffee grounds and smell like dried spices," says co-founder Harry Tannenbaum. Use the grounds to fertilize your home garden or, for an extra fee, Mill will pick them up for you.

—JARED LINDZON

Education

COLLEGES COME TO YOU

***Niche Direct Admissions**

Few high school students enjoy applying to college. Niche—the website that lets students rank and review schools—is trying to break down some of the barriers to college entry with its Direct Admissions platform. Instead of filling out, and paying fees for, whole separate applications for each college, students simply complete a free profile (with details like grade point average) and colleges come to them—automatically offering admissions and even scholarships via the platform. Direct Admissions began rolling out for the 2024–25 school year; over 930,000 high schoolers have already received at least one admissions offer through Niche. "We want colleges going directly to the families saying, 'We admit you,'" says Niche CEO Luke Skurman. —JEFF WILSER

*INVESTORS IN NICHE INCLUDE SALESFORCE, WHERE TIME CO-CHAIR AND OWNER MARC BENIOFF IS CEO

More inventions

Bounce Imaging's **Pit Viper 360** is a small thermal imaging camera that can be thrown into dangerous situations or disaster rubble to find survivors.

PherDal Kit is the only sterile, FDA-cleared at-home insemination kit available in the U.S.

Sakuu Kavian cuts toxic chemicals from batteries by 3D-printing the electrodes.

The **Whispp** app converts voices impaired by illness, trauma, or disability into clear speech in real time.

Regenesis SourceStop uses activated carbon to absorb "forever chemicals" in polluted soil.

The **Babyark Convertible Car Seat Premium** has 14 sensors and an app to ensure proper installation and buckling, and send forgotten-child alerts.

Air Canada will ditch chemical spray for **De-Ice's** defrosting strips, which don't slow down boarding, on its airplanes.

The **Masimo W1 Medical** watch is the only FDA-approved wearable that tracks oxygen saturation and pulse rate.

Hero's **Surge S32** is an electric motorcycle that converts to a three wheeler, and back.

ZeroAvia's **ZA600** hydrogen-electric engine can power a 19-seat aircraft with only water-vapor emissions. Regional operators have placed orders.

TomTex's plastic-free luxury leather alternatives will soon be used by BMW and Mercedes-Benz.

Badge lets users sign into apps with a fingerprint but doesn't store the data, reducing the risk of hacks.

Rizz uses AI to help users up their game when messaging online dating prospects.

Atmo's ultra-precise AI weather forecasting is used by Tuvalu, the Philippines, and the U.S. Defense Department.

AI

AI EXPLAINS IT ALL

Google NotebookLM

Released in July 2023 by Google Labs, the AI-powered NotebookLM helps users make sense of complex information by digesting up to 50 sources—documents, YouTube videos, even entire books—and summarizing them, suggesting follow-up questions, or creating a study guide. A feature released in September that converts such source information into an eerily realistic podcast, complete with AI-generated hosts, went viral. Steven Johnson, Google Labs' editorial director and a best-selling nonfiction author, says he long dreamed of a digital companion that could take great amounts of information about a subject and help you make sense of it all. "I really spent 30 years effectively fantasizing about what eventually became NotebookLM," he says. —HARRY BOOTH

Beauty

TOP-TIER SKIN CARE

NuFACE Trinity+ Complete

NuFACE's facial-toning devices have been gaining popularity in recent years, but the latest model, the Trinity+ Complete, offers the combination of microcurrent and another proven—and hugely popular—skin-care treatment: red-light therapy. The handheld facial device has three magnetized attachments that aim to tighten facial muscles and smooth wrinkles. Thirty-six concentrated red LED lights are designed to smooth skin, while two attachments for administering microcurrents (one for targeting around the eyes) use up to 425 microamps to increase cellular adenosine triphosphate, providing a nearly instant at-home facelift. As a safety feature, the device automatically shuts off after 20 minutes.

—JESSICA KLEIN

Parenting

Practical play

Nugget Chunk

The creators of the famous Nugget, a modular couch that is attractive enough for the living room but comes apart into pieces made for climbing and fort-building, have created the product's little sister: an equally attractive, play-encouraging ottoman. "Real furniture can be a Trojan horse for a toy," says Nugget CEO and co-founder David Baron. Nugget's products embrace that idea, extending an olive branch to kids. Made of four circular, microsuede-covered foam parts with a modern look that blends in with adult furniture, users age 3 and up can "nest" in Chunk's parts, roll them around, or reconfigure them for "open-ended play," Baron says. Chunk now makes up 20% of the company's sales since its May debut. —J.K.



Green energy

USING THE POWER OF GRAVITY

Energy Vault EVx

Solar and wind energy are renewable, but rely on the weather. Energy Vault's EVx Gravity Energy Storage System instead employs massive concrete blocks, which, after being raised, store the energy that went into lifting them, and when lowered, release that energy when it's needed. The ever present pull of gravity amounts to a natural battery that can provide short-, medium-, or long-term storage, says CEO Rob Piconi. In May, the company connected its first commercial project to a grid in China, and announced a partnership with architecture firm Skidmore, Owings & Merrill to design skyscrapers that incorporate the system, potentially providing a way buildings can act as their own emergency generators.

—MICHELINE MAYNARD

Apps & software

CLICK HERE FOR 'I DO'

Diia

Since September, Ukrainian citizens have been able to get married in a most unusual way: via Diia, the country's statewide app, which has more than 20 million users. The system is simple, if unromantic: One partner proposes through the app, and the other is sent a notification. If the second party says yes within 14 days, the two agree on a date for a video-call wedding, complete with officiant, on the Webex platform. It might sound like an austere way to profess one's love, but it was designed to help the many Ukrainian couples who are physically separated by Russia's invasion of the country carry on with their lives. More than 1.1 million Ukrainians proposed using the tech in the first month it was available, and 435 couples married in that time frame. —C.S.W.

Accessibility**SUBTLE HEARING HELP****Apple AirPods Pro 2**

It might have seemed an inevitable development, but your AirPods can now double as hearing aids. The FDA has cleared Apple's software update that uses iPhones for clinical-grade hearing tests—similar to the ones audiologists perform—and turns AirPods Pro 2 into hearing aids if they determine you have mild to moderate hearing loss. With the software and the Apple Health app, users can adjust the AirPods to their specific hearing needs, without having to invest in costly hearing aids. It's Apple's latest foray into optimizing the potential health uses of its devices, which chief operating officer Jeff Williams says the company views as "a moral responsibility to do more in this space, since so many people have our devices with them." —ALICE PARK

Experimental**LAB-GROWN FABRIC****Galy Literally Cotton**

As its name declares, Literally Cotton is identical, on a cellular level, to the natural material grown for clothing. But it isn't grown the conventional way, which contributes to deforestation and uses significant water and chemicals. Galy's version is cell-cultured cotton: cells from a farm-grown plant are multiplied in a succession of fermentation vessels, in a process analogous to brewing beer. The system uses fewer resources and produces more consistent results than farming. "With all due respect to agriculture," says founder Luciano Bueno, "we believe we can produce the same thing in a lab facility, better." It's not yet commercially available, but interest is high; Inditex, parent company of fast-fashion giant Zara, acquired a stake in the company this year. —CHRIS NORRIS

Green energy**A LONGER-LASTING CHARGE****South 8 LiGas**

Lithium-ion batteries have quickly become the standard for powering vehicles, but South 8 CEO Tom Stepien says they have three problems: "fire, cold, and cost." South 8 addresses all three with LiGas, a liquefied gas electrolyte that, when injected into battery cells, provides a more stable and longer-lasting charge. LiGas batteries reduced fire risk compared with lithium-ion in a U.S. Army test; they work at -60°F vs. -30°F ; and they cost around \$100 per kilowatt-hour vs. \$150. They also charge in minutes vs. hours. South 8 has a contract with the U.S. Department of Defense and is talking to major car companies.

—MICHELINE MAYNARD

Consumer electronics**A PEACEFUL POCKET DEVICE****Boox Palma**

Modern phones are anxiety-provoking attention suckers, to put it lightly. China-based Boox's stylish Palma, a smartphone-size e-reader, is designed to provide on-the-go entertainment without distractions via its black-and-white e-paper display and lack of a cellular connection (it only supports wi-fi). Though the device runs Android software, the display's slower refresh rates mean most entertainment apps are less functional compared with a smartphone. You're not supposed to try to do more things with a Palma; it's made for reading e-books and listening to music or podcasts. Ultimately, Boox CEO Kim Dan says, the Palma is a stab at helping people "regain inner order and peace."

—RAYMOND WONG

Medical care**WHAT'S YOUR WEIGHT-GAIN TYPE?****Phenomix Sciences MyPhenome**

As effective as weight-loss drugs like Wegovy and Zepbound are, they don't work for everyone. Mayo Clinic obesity expert Dr. Andres Acosta and his team studied thousands of obesity patients to understand which factors contributed to weight gain—including genetics, microbiome, metabolic characteristics, and behavioral habits—and created MyPhenome, a genetic test that, together with a detailed questionnaire, categorizes people into four weight-gain types. One, called HungryGut, is most likely to respond well to GLP-1 weight-loss drugs. People identified as HungryGut lost twice as much weight while on the drugs as those who tested negative for HungryGut. —A.P.

Food & drink**FILTERED WATER, ANYWHERE****LifeStraw Sip**

LifeStraw's Max water cleanser, designed to clean impure water at a population level, was one of TIME's Best Inventions of 2023. The company's new device is more personal. The Sip reusable water filter straw, made of stainless steel, uses a high-flow microfilter membrane with 0.2-micron pores to block out 99.999999% of bacteria, 99.999% of parasites, and 99.999% of microplastics. Users can sip 1,000 liters of water over the lifetime of each straw, which comes in its own carrying case. The ultra-portable filter is ideal for world travelers and outdoors adventurers, and they'll be helping others: CEO Alison Hill says that for every purchase, LifeStraw donates a year's worth of safe drinking water to a child in need.

—CHRIS STOKEL-WALKER





Outdoors

Glowing flora

Light Bio Firefly Petunia

By day, the petunias look like normal white flowers. In the evening, they emanate a soft glow that looks like moonlight. It feels like magic, but is rooted in science: the startup Light Bio spliced the petunia's DNA with that of bioluminescent mushrooms, creating the soothing glow-in-the-dark wonder. (The plants are commercially available via Light Bio's website but have been so popular, they sold out; the company expects more inventory in early 2025.) "Psychologically and emotionally, we attach light with life, with spirit, with soul," says Keith Wood, CEO and co-founder of Light Bio. "We wanted to show that science can be more than just practical. We wanted to show that science can be joyful." —Jeff Wilser

More inventions

Shiru Protein-Discovery.ai

uses AI to predict the functions of naturally occurring proteins.

Bimotal Elevate

turns a pedal bike into an e-bike with a cell-phone-size clip-on device.

NASA's Europa Clipper,

which launched in October to explore Jupiter, is the largest planet-bound spacecraft ever.

Mustang Survival Atlas 190 DLX

is a sleeker, more comfortable life jacket.

Captions'

AI video editor can dub users' voices into 28 languages with synched lip movement.

InnerPlant CropVoice

engineers plants to emit a signal, detectable by sensors, when they are stressed by fungal infection, so farmers can treat and save crops earlier.

Fervo Energy's

geothermal **FervoFlex** can produce or store clean energy, depending on demand.

BackAware Belt

tracks spinal motion and gives real-time form feedback during exercise.

AISeer's

Facticity.AI fact-checks submitted text, claiming a 92% accuracy rate as compared with 72% for competitors.

Prenosis Sepsis ImmunoScore

is the first AI-driven diagnostic test for sepsis to be authorized by the FDA.

Sports-recovery boots

Hyperice Normatec Elite use air pressure to massage legs, wirelessly.

Ready Rocker

turns any seat into a rocking chair.

Manufacturing Allbirds'

M0.Onshot Zero sneaker generates no greenhouse gases.

Tosy Flying Disc

produces an LED light show when thrown, and a different one when lost.

ThredUp AI

Search helps shoppers find secondhand pieces to fit ultra-specific criteria.

Home health**AN AT-HOME NASAL VACCINE*****AstraZeneca FluMist***

For the first time, you can vaccinate yourself against flu. The FDA recently approved the first at-home vaccine to prevent influenza, the nasal spray FluMist, which was originally approved in 2003 but only to be administered by doctors. FluMist works just like a regular vaccine, sans needle—it contains a weakened form of influenza that can activate the immune system to fight the virus, but won't cause infection. Beginning next year, doctors can write prescriptions for FluMist for anyone under age 50, and users can pick up the spray from the pharmacy to give themselves. (Caregivers can administer the spray for children.) The drug's maker MedImmune, a subsidiary of AstraZeneca, expects to have doses ready for the fall-2025 flu season.

—ALICE PARK

Transportation**A MODERN RV*****Pebble Flow***

When Bingrui Yang rented an RV for the first time, he loved the freedom but hated the broader experience. “The products on the market are really bad,” he says. Yang had worked on the iPhone at Apple and later at self-driving-vehicle companies Zoox and Cruise, and thought there was a better way. His Pebble Flow is a sleek, all-electric, semi-autonomous travel trailer. Inside, modern Scandinavian design feels like an upscale hotel, complete with an indoor-outdoor induction cooktop, and bathroom walls that toggle from opaque to transparent for a more spacious feel. The 45-kWh battery stores 3.5 times the energy of a Tesla power wall. That helps power an iPad from which drivers can control things like autostabilization and hitching the trailer to a vehicle. —CHRIS STOKEL-WALKER

Fitness**Next-gen athletics*****On Cloudboom Strike LightSpray***

While many running-shoe companies innovate from the bottom (think: soles with superfoams and carbon plates), Swiss sportswear brand On took a top-down approach with the laceless Cloudboom Strike LightSpray, which made its debut on a handful of athletes at the 2024 Paris Olympics. (Kenyan runner Hellen Obiri won the Boston Marathon this year in a prototype version.) To craft the socklike design, an automated robotic arm sprays 1.5 km of an elastic thermoplastic material onto a performance midsole. “It’s not a weave, it’s not a knit, it’s something new,” says Nils Altrogge, On’s director of innovation technology and research. That three-minute process eliminates hundreds of manufacturing steps (and the need to tie your shoes). —Ashley Mateo

More inventions

Abridge AI does doctors' paperwork so they can focus on patients.

Bose Ultra Open Earbuds balance immersive audio with awareness of your surroundings.

NEMO's **Endless Promise Collection** is a line of fully recyclable backpacks and sleeping bags.

BeeHero's **Pollination Insight Platform** uses a small device that monitors bee activity and health inside each hive.

DeWalt Power-shift runs larger tools like compactors on a battery instead of gasoline.

Rion Aesthetics' antiaging **Plated Intense Serum** uses cell-healing exosomes derived from platelets to help skin regenerate.

Daye Diagnostic Tampon can detect vaginal ailments—from bacteria, fungi, or STIs—at home.

GyroGear's **GyroGlove** uses a gyroscope on the back of the hand to steady tremors.

Beflo Tenon Smart Adjustable Desk is a simple, elegant standing desk.

Whisker Litter-Robot 4 is a smart litter box that keeps your cat and home clean and odorless.

With the wireless **ThermoPro Twin Temp-Spike Plus**, cooks can track meat temps by app from up to 500 ft.

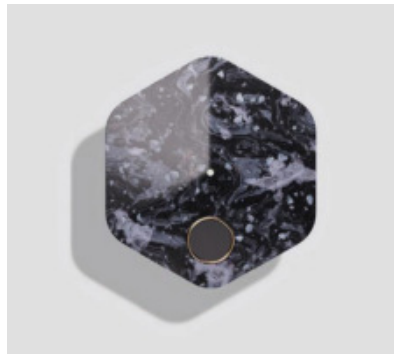
Lenovo **Think-Book Transparent Display Laptop Concept**'s screen looks like a pane of glass, and a flat touchscreen can be a keyboard or drawing pad.

Bandit managed to fit six pockets into its workout **Stamina Nova Crop top**.

iFixit's USB-powered **FixHub Smart Soldering Iron** makes for safer home tinkering.

Rebind uses AI to let readers discuss books with experts and authors.

Figure 02 is a humanoid robot in trials as a warehouse worker at BMW's South Carolina plant.



Crypto & blockchain

SAFEGUARDING BITCOIN

Block Bitkey

Block, the financial-services company founded by former Twitter CEO Jack Dorsey, created Bitkey to more easily let users store bitcoin outside of web-based exchanges, which historically have been unstable or even collapsed. To access your crypto, just unlock the physical device (made of quartz) with your fingerprint and tap it with your phone. The system has safeguarded methods to regain access should you lose your phone, the hardware, or even both, via “trusted contacts”—you can choose, say, your mom. Bitkey brings bitcoin “self-custody to the mainstream,” says Block’s head of hardware, Thomas Templeton.

—JESSICA KLEIN

AI

THE LARGEST-EVER CHIP

Cerebras Systems Wafer-Scale Engine 3

To run AI models, computers constantly shift vast amounts of data between separate memory and logic chips, which chokes performance. To solve this, Cerebras Systems in 2019 engineered a dinner-plate-size chip—the largest ever—that embeds both memory and logic. “People thought we were mad hatters,” says co-founder and CEO Andrew Feldman. In March, the company released a record-fast third generation, the Wafer-Scale Engine 3, which can train models 10 times the size of OpenAI’s GPT-4, and will power the Condor Galaxy 3, a supercomputer being built in Texas. —HARRY BOOTH

Aerospace

RETAIL DELIVERY BY DRONE

Wing

Google sister company Wing has built one of the world’s largest residential drone-delivery operations, pushing aerial product drops past proof of concept and into shoppers’ neighborhoods. In the Dallas–Fort Worth metroplex, Wing and Walmart had already reached 60,000 households as of May and have their sights set on serving the full population of 8 million. Shoppers mark a delivery location on their property, a store employee packs the shipment, and Wing’s software calculates the flight route. A hovering drone lowers a tether to pick up and release packages, and returns to the store for docking. In March, Wing expanded its DoorDash partnership in Virginia, and in Europe, its drones are making urgent hospital deliveries.

—DON STEINBERG

Health & wellness

MACHINE MASSAGE

Aescape robot massager

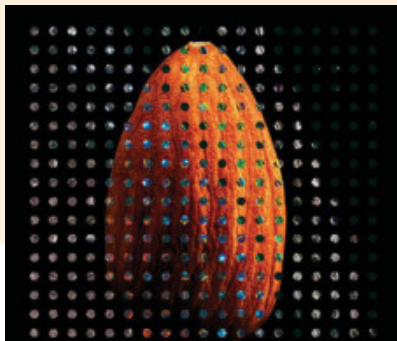
Aescape’s fully automated robot arms reimagine massage with a full-body scan and machine learning to create a personalized plan for each patient. “This new concept of an on-demand massage puts people in control,” says founder and CEO Eric Litman. A touchscreen lets users direct the two robotic arms’ pressure, target specific areas, and change the music and lighting. Patrons can now book an Aescape massage at some Equinox gyms in New York City, the Kimpton Epic Miami, the Four Seasons Resort Orlando, or the Four Seasons Baltimore (with more locations coming). A 30-minute session starts at \$60, but because it can work on both sides of the body at once, Litman says it offers “at least twice the work in half the time you’d spend in a traditional massage.” —A.M.

Fitness**COOL RUNNINGS*****Omius Headband***

Dutch runner Sifan Hassan didn't need a crown of laurels when she won the women's Olympic marathon this summer—she was already wearing Omius' cooling headband. The gear's 20 cubic cooling units are cut from a porous graphite that pulls water in; when wet, the units' uneven surface increases the area from which moisture can evaporate, amplifying the body's natural cooling mechanism; it's like working out with a cool cloth on your forehead that never dries out. "That either makes you perform better because you feel like you're exerting yourself less, or makes you more comfortable performing at the same level," says Omius CEO Jake Leschly. The company says sales skyrocketed after the Paris Games. —ASHLEY MATEO

Food & drink**More nutritious plants*****Brightseed Forager***

Many plants and fungi contain bioactives, little-understood natural compounds that could benefit human health. "Somewhere along the way, we lost a lot of that knowledge," says Lee Chae, CTO of Brightseed and creator of Forager, which uses AI to help map the plant genome. Forager has now assembled the world's largest library of natural small molecule compounds—over 7 million and counting—and linked them to potential health benefits. This map can be used by food companies to understand their bioactives, as with Brightseed's partnership with Blue Diamond, attempting to optimize its almonds. —Jeff Wilser

Social good**A GAME-CHANGING VACCINE*****R21/Matrix-M***

After decades of development, the World Health Organization has recommended two vaccines to combat malaria, which infects hundreds of millions and kills 600,000 people a year, mostly children. One was developed by researchers at Oxford University and the Serum Institute of India: R21/Matrix-M targets the malaria antigen R21 and includes an adjuvant from Novavax, which helps to amplify the immune response generated. Serum began shipping the first doses in May at just under \$4 per shot, and CEO Adar Poonawalla anticipates continuing to provide 50 million to 60 million doses annually to Africa, where malaria remains endemic, over the next three years. "We have the capacity, the demand, and the will of the people to want this vaccine," he says. —ALICE PARK

Automotive**A NOSTALGIC EV*****Volkswagen ID. Buzz***

"So many cars on the road today look angry," says Mark Gillies, director of PR and reputation at Volkswagen U.S. "The ID. Buzz looks friendly and happy." The first EV minivan to hit the U.S., the ID. Buzz takes its design cues from the famed VW minibus, originally released in 1950. Although nostalgia is undoubtedly part of the appeal, Gillies argues that the seven-seater is a practical vehicle too: "You get the same interior space as a full-sized SUV, but it's 30 in. shorter." A long wheelbase and the hefty batteries beneath the floor make the minivan incredibly stable, and the fast-charging lithium-ion battery charges to 80% in just 30 minutes with maximum charging speeds. The vehicle goes on sale in the U.S. this fall.

—CRAIG WILSON

Entertainment & gaming**Immersive gaming*****Tecno Pocket Go***

At first glance, the Tecno Pocket Go gaming system seems to be missing an important element: a screen. But when users slip on the augmented reality glasses that come with the handheld console, it opens up a display projection comparable to a 215-in. TV screen. Marrying the headset—which includes head-tracking, vibration, and adaptive posture technology—to a compact controller that doubles as a Windows 11 computer creates a more portable and immersive experience for gamers on the go, or with limited space at home. Users can even sync the glasses to their phone, TV, and other devices to create a DIY spatial reality. This fall it will be available in Europe. —A.M.





More inventions

The **Harbor Baby Monitor** is end-to-end encrypted and works with or without internet connection.

Windfall Bio's Methane-Eating Microbes fertilize farm soil and help it absorb more climate-change-causing methane.

Guardant Health Shield can detect colon cancer with a simple blood test.

Humanitarian orgs in Colombia 3D-printed **Filter Caps**—bottle caps that can make river water potable.

Sony Bravia Theater U is a wireless neckband speaker that envelops the wearer in sound without disturbing others.

Laguna Insight AI aims to reduce nurse burnout by providing key information about patients before telehealth calls.

Bristol Myers Squibb Cobenfy is the first new treatment for schizophrenia in decades, with fewer side effects.

Petlibro Polar Wet Food Feeder refrigerates wet cat food for up to three days, and lets you feed via an app.

UVeye Vehicle-Inspection Systems use cameras to scan cars for damage in seconds.

Haikubox records bird calls, identifies species, and shares info with the birder community.

GE Profile Smart Indoor Smoker lets you smoke barbecue without smoking your kitchen.

Brainbox AI ARIA automates a building's HVAC system and claims to cut energy costs by up to 25%.

AM Batteries' Powder to Electrode Method reduces the cost, time, and energy needed to make batteries by using a dry process instead of the current wet.

Honor Magic V3 is the thinnest foldable smartphone, thanks to a battery that's as thin as a credit card.



Parenting

Better breast-milk storage

**Mila's Keeper
MilKeeper**

Breastfeeding is healthy for babies but can be burdensome for parents. When away from home, certified lactation educator Lara Vu found that most milk containers could keep cold for only a few hours at most. So Vu created the MilKeeper, a stylish, portable breast-milk cooler with a reusable high-density polyethylene ice pack to keep 12 oz. of milk safe on the go for up to 20 hours. The glass bottle attaches to breast-pump flanges for pumping, a sealed top for storing, and a nipple for feeding, eliminating the hassle of transferring milk between different containers.

—Jared Lindzon

Consumer electronics

WIRELESS HEADPHONE LUXURY

Sonos Ace

Renowned speaker maker Sonos' first pair of headphones, the Ace, features plush vegan-leather ear cushions, a sturdy stainless-steel headband, and ear cups made partially from recycled plastic. Sonos VP of product Chris Kallai says that over the course of 25 months, the company "rigorously tested multiple designs with a diverse set of people across age, sex, tech savviness, and personal style" to come up with the super-comfortable wireless design. Sound quality is top-notch, as is the active noise cancellation. But the Ace's, well, ace in the hole is its "TV Audio Swap" feature: a long press of a button instantly sends audio from a Sonos soundbar that's connected to a TV to the headphones for private listening. —RAYMOND WONG

AI

FINDING CURES

**Google DeepMind
AlphaFold 3**

In 2020, Google DeepMind unveiled AlphaFold 2, a machine-learning algorithm that in 2022 would prove capable of predicting, with near experimental accuracy, the structure of nearly every known protein. The breakthrough recently earned co-founder and CEO Demis Hassabis and AlphaFold team lead John Jumper a Nobel Prize in Chemistry. Now there's a sequel: AlphaFold 3, released in May, predicts how proteins interact with DNA and other molecules. "AlphaFold 2 was a story about proteins," Jumper says. "AlphaFold 3 is about how proteins talk to everything else." Many in pharmaceuticals and medicine believe that the new model's predictions will accelerate research and drive faster drug discovery. —HARRY BOOTH

Finance

SIMPLIFYING TAX RETURNS

Column Tax

Millions of Americans eligible for free income tax filing don't take advantage of it, in part because it isn't well integrated with the rest of their financial lives. Column Tax figures it's cheaper and easier when tax filing is part of a banking or accounting application you're already using, so it's building a bridge to connect those apps with tax prep. "There's no reason tax needs to be separate," says CEO and co-founder Gavin Nachbar. The company's application programming interfaces (APIs) allow apps like Chime and NerdWallet to embed free tax filing into their offerings, using already stored data plus other sources as needed. This year, Column Tax says it processed over \$150 million in refunds in its first full tax season for people in all 50 states. —DON STEINBERG

Education

ROLLING ROBOTICS

Sphero Bolt+



Sphero's 2018 Bolt—a baseball-size orb that could be programmed to roll and scurry around—offered students a visceral experience in early coding. Now, the Sphero Bolt+, aimed at kids ages 8 to 13, boasts a ground-up redesign, which adds a durable, waterproof polycarbonate shell and a more robust internal navigation system, so kids can send it through a stream or off a jump without damage. The robot also features a larger screen—a 128-by-128-pixel LCD—which displays over 650 images and animations to enhance lessons on "lifecycles, the solar system, history, and a whole bunch of other subjects well beyond STEM," says Sphero's senior product manager, Nate Ubowski. Bolt+ is sold individually or in sets for classroom use.

—CHRIS NORRIS

Connectivity & communication

BEAMING THE INTERNET

X Taara

Worldwide, 2.6 billion people lack an internet connection. The mission of Taara, which sits within X, Alphabet's moon-shot factory, is to bridge that gap. Taara uses beams of light to transmit data between small terminals, offering an alternative to traditional fiber-optic cables in places where installing ground-based systems is tricky. "Think of it like fiber, but without having to run any fiber—it's just over the air," says Mahesh Krishnaswamy, general manager of the project. The beams can reach over 20 km. Taara has been installed in 13 countries, including India, Kenya, Fiji, and even the U.S. (in rural areas and at events like Coachella). Most recently, in Ghana, 20,000 new users and 320 businesses have come online thanks to Taara.

—CHRIS STOKEL-WALKER

Accessibility

A TREADMILL FOR WHEELCHAIR USERS

Kangsters Wheely-X

Five years ago, John Cho's father became paralyzed after a medical procedure went wrong, leaving him with few ways to exercise. So Cho, co-founder of the South Korean startup Kangsters, helped create one: Wheely-X, a wheelchair treadmill that pairs with a mobile device (there's a free app) or a PC to offer workouts such as wheelchair racing games, endurance training, and seated yoga. Thanks to Wheely-X, Cho says, his father is now strong enough to climb a steep hill in his chair and transfer himself from chair to bed without assistance. The company showcased the system at the 2024 Paralympic Games and has begun selling to private users, gyms, hospitals, and rehabilitation centers. —JAMIE DUCHARME



Household

EASY-TO-ADD SPACE

Samara Backyard

Adding more space to your home can be tough. Building an additional dwelling unit (ADU) on your property often comes with months of disruption and contractors. Samara's Backyard homes aim to cut out the turmoil. "We think that an ADU should be as easy to get as a Tesla," says co-founder and CEO Mike McNamara. "Homeowners deserve flexible space that's beautifully designed and that can be financially empowering." To that end, the company is a one-stop shop—from selection (its five models start at \$274,000 and range from 420 to 950 sq. ft.) to permitting and financing. The whole process takes about seven months, but the ADU is built entirely off-site and the actual installation takes about six weeks. —ASHLEY MATEO

Sustainability

TRACKING EMISSIONS FROM SPACE

GHGSat-C10 'Vanguard'

Legions of satellites orbit the earth, but only a few monitor our planetary health. GHGSat has 11 satellites in orbit to track methane emissions, and a 12th, named GHGSat C-10 "Vanguard," launched in November 2023 to look for carbon dioxide emissions and leaks. "Every gas in the atmosphere has a spectral fingerprint that absorbs light at specific wavelengths. When we want to look for [CO₂], we tune our spectrometer to look for that fingerprint," says CEO Stéphane Germain. He believes the company will need 20 satellites total to track daily methane and CO₂ spikes, with potential clients including oil and gas companies looking to mitigate emissions. —C.S.W.

More inventions

The **Tilta Khronos Ecosystem** of accessories turns an iPhone into a professional film-making camera.

Sarepta Therapeutics Elevidys is the first-ever gene therapy for Duchenne muscular dystrophy, paving the way for other genetic therapies.

Practice your balance on Gibbon's **GiBoard**, a portable slackline.

Virtue Damage Reverse Serum uses a proprietary protein, Alpha Keratin 60ku, that aims to seal hair's split ends.

Meatable's Opti-Ox tech turns stem cells from live pigs into lab-grown pork, available in Singapore next year.

***Cohere Command R+** is AI for businesses, summarizing documents in multiple languages.

NanoTech Materials puts its **Insulative Ceramic Particle** into coatings that insulate buildings from external heat and fire damage.

Segway GoKart Pro 2 can drive around town or connect at home as a seat and controller for racing games.

Cavnue turned a stretch of I-94 in Michigan into a **Connected and Automated Vehicle Corridor**, embedded with sensors that track road conditions in real time.

Pivot Bio N-Ovator connects companies with farmers who avoid synthetic nitrogen fertilizer, to clean up the supply chain.

Farmerline's **Darli AI** chatbot translates advice on regenerative farming into local languages in Africa, Asia, and South America.

Autonomous crop-dusting aircraft **Guardian Agriculture SC1** is the first electric vertical take-off and landing vehicle to get FAA approval.

Unify Medical Amplio offers surgeons more precise vision via digital loupes, an advanced version of the magnifying glasses.

Medical care**CATCHING CANCER EARLY****Northwell Health iNav**

The five-year survival rate of pancreatic cancer is just 13%, largely because it's often not detected until it's too late. That's why at Northwell Health, New York State's largest health care system, hospitals use the AI-powered iNav (developed in-house) to proactively analyze images of patients' MRIs and CT scans—taken for unrelated health issues—searching for evidence of cancerous masses or lesions. Northwell says the system has slashed time to treatment, the period from diagnosis to the beginning of addressing the disease, by 50%. Dr. Daniel King, a developer of iNav, says it has “totally revolutionized our ability to get these people connected to care.” Northwell is currently exploring licensing iNav to other hospitals. —JEFF WILSER

Design**Simpler cycling****8 Degree Pedal X8-1 Floating Pedal**

Bike pedals have trade-offs. Many clip-in pedals provide “float,” meaning they have some wiggle room side-to-side, which is gentler on your knees. The downside is that you need special shoes and your feet are stuck to the pedals (until you decide to unclip), which many riders are reluctant to do, fearing worse injuries in the event of a crash. So 8 Degree Pedal created a “flat” pedal (no clips or special shoes required) with internal springs that offer float. “You get the 100% freedom of a normal tennis shoe,” says founder Kenneth Belknap. And you could save your knees some pain. —J.W.

Apps & software**BATTLING FAKE PHOTOS****Content Credentials**

The image of Taylor Swift supporting Donald Trump? Fake. With generative AI, misinformation is easy to weaponize. That's why the Content Authenticity Initiative—over 3,000 tech and media companies, including Adobe, TikTok, and the Associated Press—and the Coalition for Content Provenance and Authenticity, which includes Google, OpenAI, and the BBC, have created Content Credentials, a system of watermarks and metadata intended to ensure image authenticity. Under the system, a participating company's digital camera could affix the original image with metadata, while Photoshop could track any AI edits. Andy Parsons, senior director of the Content Authenticity Initiative at Adobe, calls it “a way to provide a ‘nutritional label’ for digital content.” —J.W.

Household**A TRUE ROBOTIC LAWN MOWER****Mammotion Luba 2 AWD Series**

Robot lawn mowers aren't new, but most need underground wires to define a perimeter and ensure safety. Mammotion's Luba 2 AWD is completely wireless, using a system of GPS, cameras, ultrasonic radar, and 3D vision to dynamically map the terrain and avoid obstacles like chairs and cats. The size of a tricycle, the battery-powered mower (so no gas guzzling) even lets users custom “write” words in the grass, should they be so inclined. With a sleek white design, it is also the rare stylish piece of lawn equipment. “It looks like a Formula One racing car,” says José Cuervo, Mammotion's head of DIY Channel Europe. “It's really an eye catcher.” —J.W.

More inventions**Filterbaby Eco-Pro Shower Filter**

claims to remove 99% of chlorine, lead, and PFAS from water without plastic casings on its filters.

***Runway Gen-3 Alpha** makes AI-generated video and is partnering with Lionsgate on films.

ALZpath pTau217 Antibody lets doctors blood-test for Alzheimer's before symptoms appear.

3M Peltor WS Alert XPV Headset powers ear protection and communication with indoor and outdoor light.

The long-lasting **Torus Nova Spin** uses a rotor inside a dishwasher-size unit to store energy for backup power.

Wearable pregnancy monitor **Nuvo Innu** lets doctors check on high-risk patients remotely.

Electric spice grinder **FinaMill FinaPod GT** comes with swappable pods of different spices.

Merrell SpeedARC Surge B0A

slims the hiking shoe by using a nylon plate in the sole to create a suspension system.

Dyson's **OnTrac** is an exceptionally stylish over-ear headphone.

Prolific Machines Photomolecular Platform uses light beams to change the functions of cells. It's already making lab-grown meat and therapeutics.

The **LG Signature OLED T** is a transparent TV.

Spiritus Carbon Orchard makes reusable tennis-size balls that absorb carbon from the air in any open space.

Smart Box Health Monitoring Cat Litter changes colors to flag abnormalities, and is fully biodegradable.

Founded by a former SpaceX scientist, **Arbor Power Station** uses oxy-combustion—like in rocket engines—to convert organic waste into low-cost energy.

*INVESTORS IN RUNWAY INCLUDE SALESFORCE, WHERE TIME CO-CHAIR AND OWNER MARC BENIOFF IS CEO

Sustainability

WATER FROM THE SKY

Aquaria Atmospheric Water Generators

Potable water is becoming an ever scarcer resource, even though our atmosphere is laden with 38 million billion gal. of the wet stuff. Tapping into it is the tricky part. Aquaria does so using large-scale heat-exchange systems, which suck air in and pass it through multiple filters. The humidity is condensed out of the air and turned into water, which is then purified. Developers working with Aquaria just broke ground on a \$26 million project in Hawaii that aims to see 1,000 homes installed with Aquaria devices eventually producing 260 gal. of water a day. “Our vision is to be able to one day supply water for entire cities from the sky,” says company co-founder and CEO Brian Sheng.

—CHRIS STOKEL-WALKER

Aerospace

SPEEDIER SPACE TRANSMISSIONS

NASA Deep Space Optical Communications

NASA’s Deep Space Optical Communications experiment—currently aboard the Psyche spacecraft en route to a distant asteroid—includes a laser transmitter that works like a radio, but with more data-carrying oomph. In December, 19 million miles from Earth, the system sent a 15-second transmission home at a speed equivalent to internet broadband. The tech portends big things for future missions. “If you look at Mars rovers, you get several images per day,” says Abi Biswas, NASA’s project technologist for the system. “With this optical communications link, we expect to be able to deliver ultra-high-definition video and stream it.” —JEFFREY KLUGER

Fashion

High-tech tint

Chamelo Lens Technology

Transition lenses typically take around 30 sec. to darken in UV light and a few minutes to go transparent inside. Chamelo lenses change tint in less than 0.1 sec., thanks to a “flexible, liquid crystal film” that is controlled electronically by tapping or sliding a finger across the temple. The glasses come in a variety of fashion or sport styles, including a Prismatic collection with color-changing lenses, and a Music Shield version that includes subtle speakers in the temples to let wearers listen to music or take phone calls. The company has shipped glasses to more than 100 countries since its May launch, and plans to roll out prescription versions in the future. —Jessica Klein



Consumer electronics

A TRI-FOLD SMARTPHONE

Huawei Mate XT Ultimate Design

In September, Chinese smartphone maker Huawei one-upped its global competitors, becoming the first company to bring a triple-screen foldable phone to market. The Mate XT Ultimate Design, which is currently available only in China, boasts an eye-popping 10.2-in. display when fully unfolded into a tablet-like landscape configuration. (It also has a two-screen mode and normal smartphone-size capabilities.) Users can get up to 1 TB of storage on the device, which features a four-lens camera that can operate in any of the phone’s folding configurations. The 5,600 mAh battery is plenty powerful, and all the more impressive given the phone’s slimness: just 3.6 mm when unfolded. —C.S.W.

Home health

FALL ASLEEP FASTER

Moonbird

Frustrated by her long-term insomnia, and wanting a better form of guidance for the breathing exercises that can help, Stephanie Broes and her brother Michael created Moonbird, a palm-size, screen-free breathing coach. “Traditional meditation tools can feel overwhelming, and screens disrupt the relaxation they aim to promote,” says Broes. Hold the ergonomic device in your hand, and breathe in when it gently expands and out when it contracts. The soothing guidance encourages the holder to adapt rapid or inconsistent breathing to a more restful pattern, shifting their body into a “rest-and-digest” state so they feel calmer and more relaxed, and can fall asleep more easily. Moonbird can be used by adults or kids.

—ASHLEY MATEO

Design

NO MORE BULKY SPEAKERS

Samsung Music Frame

Samsung has managed to beautify the home speaker—by disguising it as a picture frame. Propped up on its stand or mounted on a wall, the 13.8-in.-by-13.8-in. Music Frame can display 8-in.-by-8-in. prints, while packing six powerful yet invisible speakers that play music wirelessly over Bluetooth or wi-fi, and integrate with voice assistants including Alexa. Multiple Music Frames can be paired together or with other Samsung-compatible audio products as part of a whole-room or whole-home soundscape. The original frame comes in black, but users can make it white to match their decor—after all, aesthetics are of utmost importance here—with an optional snap-on bezel.

—RAYMOND WONG

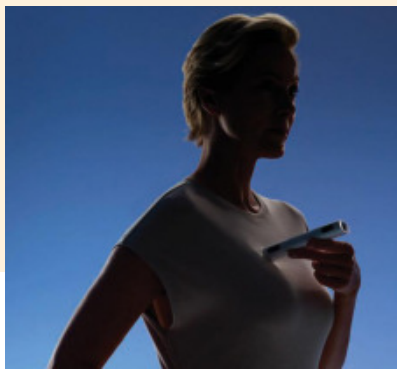
Home health

Home checkup

Withings BeamO

Imagine a medical checkup that doesn't require a visit to a doctor's office. Withings' BeamO combines four different sensors in one TV-remote-looking device that can detect body temperature, listen to lungs, scan the heart, and check blood-oxygen levels. "It represents the at-home health-monitoring revolution," says product manager Livia Robic. That medical data syncs to an app, where users can monitor up to eight family members as well as send info to their doctors for remote diagnoses. The company says it expects FDA clearance for over-the-counter sales in November.

—Ashley Mateo

Sustainability

ZAPPING PFAS AWAY

Gradiant ForeverGone

Forever chemicals—specifically per- and polyfluoroalkyl substances (PFAS), which have been linked to cancers—have become ubiquitous, including in our water supplies. Governments are finally cracking down; in April, the EPA announced the first legal limits on PFAS in drinking water. Now, companies and municipalities need help cleaning up. Gradiant's ForeverGone injects billions of microbubbles into water supplies to break PFAS away from water molecules. The resulting concentrated PFAS foam is cleaned by electrodes that zap the PFAS away. "We are not sweeping [PFAS] under the carpet," says co-founder and COO Prakash Govindan. "It's complete destruction." Gradiant's clients include utilities and companies like Coca-Cola and BMW. —CHRIS STOKEL-WALKER

Parenting

AN E-ASSIST STROLLER

Cybox e-Gazelle S

Martin Pos' son was the inspiration for the versatile e-Gazelle S motorized stroller. The kid was "a pretty heavy baby," says Pos, founder of German company Cybox, and the steep hills of the German countryside didn't help matters. "I was just thinking, Man, it would be really cool to put an engine on a stroller." That was decades ago, but the miniaturization of batteries has since helped make the luxury stroller, which has an automated rocking function, a reality. The lithium-ion battery runs the stroller for 28 miles on level ground or five on rugged terrain. The motor will kick in to help push up hills, or hold back on downhill to save parents' backs. The stroller has more than 20 configurations and can carry up to two little ones with attachments. —C.S.W.

More inventions

EarliTec Diagnostics

EarliPoint is a screening test that can detect autism as early as infancy.

EXeX ExperienceX software keeps operating rooms organized to each surgeon's liking.

Electra partnered with the largest U.S. steelmaker, Nucor, to lend its **Clean Iron** process and cut emissions.

The **Nuvo Invu** wearable lets OBs monitor pregnancies remotely.

***ArteraAI Multimodal Artificial Intelligence** creates custom treatment plans for prostate-cancer patients.

Aporia Guardrails intercept inaccurate and inappropriate responses from AI chatbots.

Toi Labs' toilet seat **TrueLoo** scans human waste for signs of illness.

BiVacor's Total Artificial Heart has succeeded in keeping transplant patients alive until donor hearts arrive.

Some electric buses in Washington State charge simply by pausing over plates in InductEV's **Wireless Charging Network**.

Winx Health UTI Test & Treat is an at-home service that lets users have UTI treatments sent as soon as they test positive.

Paragonix Baroguard protects transplant lungs from damage on flights.

Signature Kitchen Suite's **30-in. Transitional Series Combi Wall Oven** cooks via microwave, convection, steam, and more.

Amgen Imdelltra treats notoriously difficult small-cell lung cancer.

NASA Advanced Composite Solar Sail System propels spacecraft with photons from the sun.

Brelyon's desktop **Ultra Reality** monitor uses projections to create an immersive experience sans goggles.

Home health

IMPROVING FERTILITY COMFORT

Dandi IVF Care Kit

Fertility journeys take a mental and physical toll, and at-home progesterone injections can be painful and tricky—the shot’s thick oil must be warmed to thin. Doctors historically advised “putting the vial in your armpit,” says Dandi CEO and co-founder Jake Kent. The company’s IVF Care Kits include a heating pad with a progesterone vial pocket, a cooling pad to numb the injection site, shot targets to help users inject accurately, a hands-free belt to hold it all in place, and a massage ball to disperse internal progesterone clumping knots. A care platform provides video calls with registered fertility nurses. Dandi says sales hit six figures in its first two months and reports more than 20 successful customer pregnancies. —JESSICA KLEIN

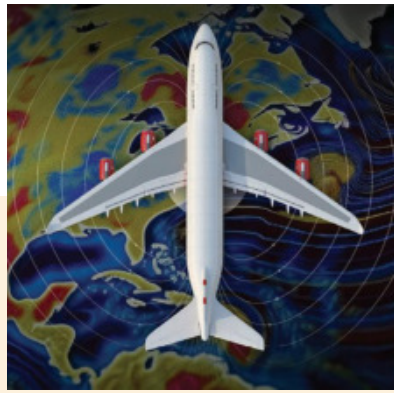
Manufacturing & materials

SPEEDY 3D PRINTING

Formlabs Form 4

3D printing is a game-changing technology, but it’s still pretty slow. Formlabs is changing that with Form 4. The desktop-size 3D printer boasts print speeds up to five times faster than its predecessor by using a system that includes powerful LED lights and a custom LCD that help turn liquid resin into solid layers. Projects that once had to be done overnight can now be completed in a matter of hours, making the tech a viable replacement for traditional injection molding. The machine allows for multiple iterations in a day, which Formlabs CEO and co-founder Max Lobovsky says lets hardware developers “take more design risks and, ultimately, bring better products to market.” Early customers include Microsoft, Ford, and NASA.

—JARED LINDZON



Experimental

Unspoofable navigation

**SandboxAQ AQNav*

GPS spoofing—deliberate disruption of a satellite signal with false location data—is wreaking havoc with civilian and military navigation. Ex-Googleer Luca Ferrara’s passion project, AQNav, uses quantum magnetometers that track waves from the earth’s crust, cross-checking them against known maps using AI to pinpoint location more reliably, without GPS. The only way to spoof the tool would be to create planet-size rock formations to throw off the natural wave signals. “It’s a use case for quantum AI that can directly benefit people with a real need,” says Ferrara. —C.S.W.

*INVESTORS IN SANDBOXAQ INCLUDE TIME CO-CHAIR AND OWNER MARC BENIOFF

Outdoors

MORE DURABLE HIKING BOOTS

Keen Targhee IV

A hiking boot breaks down when dirt, mud, and water cause the midsole (the part that touches your sock) to come unglued from the outsole (the part that touches the ground). This is called delamination, and delamination is the enemy of durability. With the Targhee IV, Keen has re-engineered the way these two parts are joined; using new Keen.Fusion tech, a robot directly blasts the soles with a liquid polyurethane that solidifies within seconds, creating a bond that’s three times as strong as normal glue. “You can flex the shoe over 1 million times, and nothing’s going to happen,” says Scott Labbe, Keen’s senior vice president of product. —JEFF WILSER

Toys & play

A FUN, FLEXIBLE ENGINEERING TOY

Thames & Kosmos Gecko Run

How much can one innovate the classic marble run, a toy nearly as old as time? STEM toy company Thames & Kosmos has managed to do so with Gecko Run. Designed for kids 8 and up, it features bendable tracks that can curve, loop-de-loop, and connect to each other as well as to kinetic diversions like a rubber-band trampoline, a snake maze, levers, funnels, and more. But the best part: a normal marble run requires tons of support pieces to achieve height, and takes up floor space; Gecko Run uses gentle sticky pads to cling to vertical flat surfaces like a wall, window, or appliance, letting kids build upward without extra parts. An eco-bonus: the toy is made with renewable bioplastic.

—EMMA BARKER BONOMO

Medical care

FORGING BRAIN-SPINE CONNECTIONS

Northwell Health

Double Neural Bypass

In 2020, Keith Thomas dived into a pool, hit his head, and broke his neck. He was paralyzed from the chest down. Then, in a first-of-its-kind surgery last year, scientists implanted microchips into his brain to connect his thoughts to arm and hand movement, creating a two-way link—a “double bypass”—that allowed signals to travel in both directions. Now Thomas can open his hand, lift his arms, flex his biceps. “He used to have family members scratch his face if he had an itch,” says inventor Chad Bouton, professor at the Northwell Health Feinstein Institutes for Medical Research. “Now he can pet his dog.” His team hopes it could also help stroke survivors in the future. —J.W.

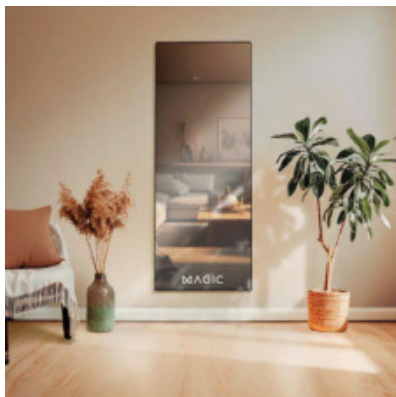
Consumer electronics**A SELF-LEVELING TRIPOD****Edelkrone Tripod X**

Kadir Koymen, the founder and CEO of Turkey-based Edelkrone, was a frustrated filmmaker. Frustrated because tripods, which require that you manually adjust each leg, one at a time, slowed down his process. “I wanted a solution that matched my need for speed and comfort, especially when using heavier setups,” he says. Following years of experimentation, he invented the Tripod X—a fully motorized tripod that can change its height and automatically level on uneven surfaces at the push of a button on an associated app, or on the body of the tripod. Its smooth movement is especially helpful for time-lapse videos. The device was soft-launched earlier this year, with plans to fully introduce it in 2025.

—CHRIS STOKEL-WALKER

Home health**OTC GLUCOSE MONITOR****Dexcom Stelo**

In March, the FDA cleared the Stelo by Dexcom, making it the first glucose biosensor that doesn't require a prescription in the U.S. The small, wearable device, worn on the back of the upper arm, is designed for people with Type 2 diabetes or pre-diabetes who are not using insulin, to prevent the disease from exacerbating using simple monitoring. The corresponding app offers readouts, showing when users' glucose levels spike and ebb throughout the day. “When someone sees their own personal data, that's empowering, because they can do something about it,” says COO Jake Leach. The app helps teach users how to minimize glucose spikes by, say, eating fiber first during meals or taking a walk straight after eating. —JESSICA KLEIN

Fitness**AN AI FITNESS TRAINER****Magic AI Mirror**

Magic AI's sleek rectangular mirror aims to replace personal trainers. Using computer vision technology similar to that used in self-driving cars, the mirror guides users through strength training, counting reps and providing real-time feedback on form. It features over 25 trainers—including celebrities like England's former cricket captain Alastair Cook—who appear as holograms, offering guidance, and can recognize 400 distinct exercises, combining them into hundreds of classes, tailored to each user. The mirror costs less monthly than a personal trainer, and has proved particularly popular with people who typically avoid gyms because “they find it too intimidating, they're too time poor, or it's too expensive,” says co-founder and CEO Varun Bhanot.

—THARIN PILLAY

Medical care**DETECTING SKIN CANCER****DermaSensor**

When it comes to skin cancer, primary-care physicians often struggle to distinguish malignant lesions from nonmalignant ones, while dermatologists have long wait times. DermaSensor's namesake device is the first of its kind cleared by the FDA for use by nonspecialist physicians. It uses optical spectroscopy—the deployment of light to analyze tissues—to promptly detect likely cancerous skin lesions at a rate similar to that of in-person dermatologists. —C.S.W.

Social good**FUNDING KIDS****UNICEF Child-Lens Investing Framework**

Globally, nearly 6 of 10 children are unable to read proficiently before age 10. And more than 47 million children have been displaced because of conflict. Grim statistics like these spurred UNICEF to create the first-ever “child lens” for impact investing, a tool for potential funders to analyze how companies benefit (or impede) the well-being of children. The framework—which includes tool kits, due-diligence questionnaires, and metrics—is freely available online and already being used by investing firms like Calvert Impact. “Our goal is to steward and to ensure that the multitrillion-dollar capital markets are considering children's well-being,” says Cristina Shapiro, UNICEF's chief strategy officer. —JEFF WILSER

Sustainability**REDUCING CATTLE'S FOOTPRINT****DSM-Firmenich Bovaer**

Cow flatulence is a major contributor to the greenhouse gas in our atmosphere. Dutch company DSM-Firmenich's Bovaer addresses the issue at the source: the feed additive slows down the last step of the methane-production process in cows' rumens, the largest part of the stomach, by suppressing enzyme activity. “It works within 30 minutes,” says Maik Kindermann, head of research and development on the project. Shown to reduce methane emissions by an average of 30% in dairy cows and 45% in beef cattle, the additive was approved by the FDA in May for use in the U.S. In 2025, a facility in Scotland is set to supply Bovaer for 4 million to 5 million cows each year. —C.S.W.



Home health

The toothbrush zenith

Laifen Wave

Most electric toothbrushes either oscillate or vibrate. China-based Laifen's Wave brush both oscillates (up to 60 degrees) and vibrates (up to 66,000 times per minute). With an app featuring three toggles controlling oscillation range, speed, and vibration strength, users can customize their brushing experience to their mouth's specific needs. Manufactured the same way MacBooks get their curves—material is stretched bit by bit to create strong, even surfaces—the Wave's sleek handle doesn't have any divots where bacteria or mold could flourish. The internal parts of the brush are attached to the exterior via what's known as nano-molding technology, so they won't separate and rattle around. —J.K.

More inventions

Impulse Cooktop is a high-tech induction stove that boils water in 40 seconds.

Wndr Alpine Shepherd is a snowboard made from microalgae, not plastic.

Onward Medical ARC-EX uses external electrodes to help spinal-cord-injury patients recover strength.

X Bellwether analyzes 20 years of earth's geodata, past and present, to predict natural disasters.

With two ultra-wide lenses and 8K capture, the 360-degree **Insta360 X4** takes multi-angle video with one camera.

Adobe Acrobat AI Assistant lets PDF users ask the doc for summaries, clarifications, or definitions.

FDA-approved in 2023, **Vertex Pharmaceuticals** and **CRISPR Therapeutics'** **Casgevy** broke ground as a gene therapy for sickle-cell disease.

Asensus Surgical AugmentOR Portal analyzes video to assess surgeons' weaknesses and help them improve.

Brane X is the first portable speaker with an internal subwoofer.

Montage Health's Ohana Center is a nature-centric place for treating youth mental illness.

Samsung's Neo QLED 8K TV uses AI to upscale SD and HD video into 8K.

Roche HPV Self-Collection Solution lets women perform their own Pap smears at home.

Typeface Arc uses AI to analyze past marketing campaigns and generate new ones.

GE Lighting Cync Reveal HD+ Smart Undercabinet Fixtures provide diffuse light in any color.

Carbonfact helps fashion companies track emissions from their often-complicated supply chains.

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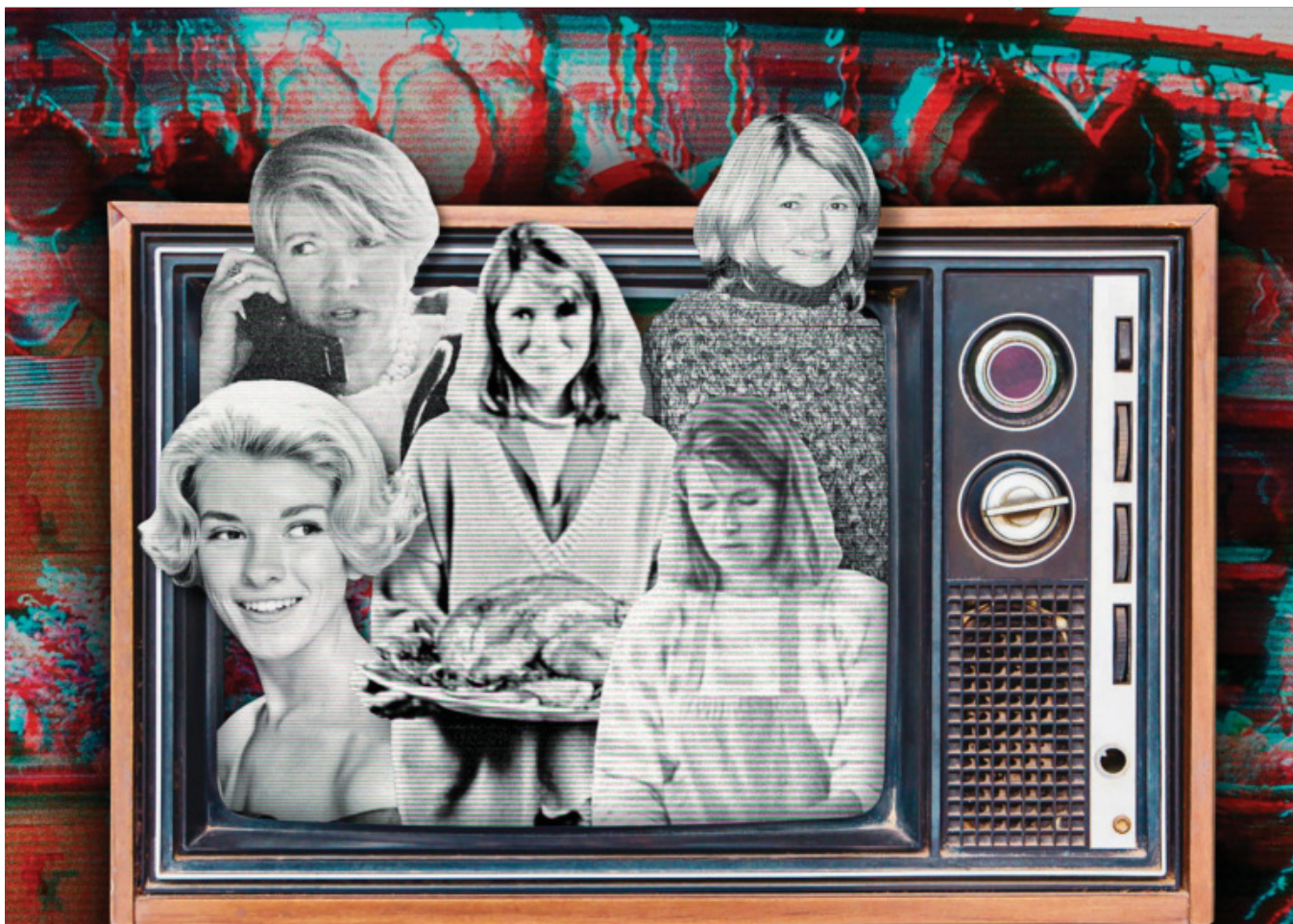
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Time Off



RECONSIDERING MARTHA

BY STEPHANIE ZACHAREK

A new Netflix documentary assays
how Martha Stewart has made us
feel across a five-decade career

INSIDE

A NEW MOVIE UPENDS
THE REDEMPTION ARC

OUR PRESENT OBSESSION
WITH SENSITIVE MEN

ANORA'S HEARTBREAKING
SCREWBALL COMEDY

LONG BEFORE INSTAGRAM AND TIKTOK EXISTED as places for us to stoke our insecurities, there was Martha Stewart. Martha, circa 1995, smiling from the pages of her namesake magazine as she put the finishing touches on a Versailles-worthy pastel cake. Martha, again in the mid-1990s, ably demonstrating the only proper way to prune an unruly tree. Martha, in early 2004, the picture of quiet luxury in her downy, twig-colored woolens as she strode into the Manhattan federal courthouse during her trial on nine criminal counts associated with the ImClone insider-trading scandal. You could love her, you could hate her, you could love to hate her or vice versa. Her mission, it seemed, was twofold: to teach you how to do seemingly unachievable things around the home, and to make you feel inadequate.

But if Martha Stewart gave many of us our first taste of feeling terrifically ill-suited to any domestic task or even just to basic living, she also inadvertently reminded us that when it comes to nurturing self-confidence, we're our own worst enemies. Her confidence and drive for perfection made us feel bad; we decided our hurt feelings were *her* fault. But now—when our social media feeds are filled with beautiful people doing remarkable things that most of us will never be able to pull off, or afford—it's time to reconsider the rise, fall, and rise of Martha Stewart. The degree to which she both inspired and angered so many of us is still something to reckon with. As Eleanor Roosevelt said, “No one can make you feel inferior without your consent.”

If you still need convincing that Martha Stewart is a human being much like the rest of us—albeit one who can cook a turkey inside a puff pastry without once bursting into tears—R.J. Cutler's documentary *Martha*, streaming on Netflix, should do the trick. Stewart has done some remarkable things: She worked as a teenage model. She was a stockbroker in the late 1960s, a rarity for a woman at the time. She launched a successful catering business in 1973. That spurred the release of her first cookbook, 1982's *Entertaining*, which led to television appearances and more books. By the late 1990s, she had built herself into a juggernaut of a brand; she was the first woman in the United States to become a self-made billionaire.

But her background was hardly privileged. *Martha* introduces us to young, fresh-faced Martha Kostyra, one of a family of six kids growing up in Nutley, N.J., in the 1940s and '50s. Her mother taught her about homemaking; her perfectionist father passed his love of gardening on to her. Stewart acknowledges she was her father's favorite; like him, she was a stickler for details. But her childhood and youth weren't easy. The family was often broke, so Stewart needed that modeling money: the \$15 per hour it brought in made a world of difference. After graduating from high school, she enrolled at Barnard and began dating Andy Stewart, the brother of a fellow student. The two married in 1961. They had a daughter, Alexis, and eventually bought and restored an old farmhouse in Westport, Conn. The property became both proof of Stewart's homemaking-skills-in-overdrive and an inspiration to millions of others who hoped to work the same magic in their own homes.



Martha reveals
a different side
of the domestic
goddess

But the marriage fell apart, and even Martha Stewart—poised, sometimes, to the point of frostiness—has a heart to break. Perfectionists are also often idealists; dashed expectations can crush them. “I always said I was a swan,” she says on camera, noting that swans are monogamous. “I thought monogamy was admirable ... but it turned out it didn’t save the marriage.” She pauses. Her expression shifts from wistfulness to something more resolute before she says, “Can we get on to a happier subject?”

BUT THEN, STEWART—not as perfect as we may have thought—also admits on camera to having had an adulterous affair herself, though she notes that it was fleeting. As a documentarian, Cutler knows how to nudge his subjects into being perhaps a little more revealing than they'd like. His superb 2009 documentary *The September Issue* pulled back the curtain on the inner workings of *Vogue* magazine, as orchestrated by the indomitable Anna Wintour. Stewart is an even better subject for Cutler, because she, unlike Wintour, fell from a very high perch—and not only recovered



but also managed to transform into a better version of her old self. In 2005, Stewart was sentenced to five months in prison, for lying to the FBI when she was questioned about her involvement in the ImClone case. Her early days at West Virginia's Alderson Federal Prison Camp were bleak. Her compatriots found her aloof, and some wanted to hurt her. She spent a day in solitary confinement for inadvertently touching a prison officer. The food was the opposite of fresh. Her boyfriend at the time, software billionaire Charles Simonyi, visited her only once. (Not long after her release, he abruptly dropped her.) "I feel very inconsequential today," she wrote in her journal, in the early days of her incarceration. "As if no one would miss me if I never came back to reality."

There's probably someone out there who delights in knowing that the always perfect Martha Stewart ever felt this low. But would you really want to meet that person? In the 1980s and '90s, Stewart was an easy target for mass derision and mockery, on *Saturday Night Live* and everywhere else. And in some ways, she invited it: she really did come off

as smug. But no one in her 80s is the same person she was in her 20s, 50s, or 60s. And not even Martha Stewart is still the Martha Stewart we knew from her earlier books, magazines, and television shows. In *Martha*, she appears on camera in a silky black blouse trimmed with a simple neckband of tiny, discreetly sparkly stones. Her fair, dewy skin looks better than just "young." Rather, it's ageless in a suitably age-appropriate way. This is also a woman who graced the cover of *Sports Illustrated's* swimsuit issue at age 81, wearing only a simple white bathing suit and a drape made of apricot taffeta. Her smile is both daring and darling, as if she's harboring a valuable secret gleaned from years of experience—though she's not giving it away for nothing.

CUTLER'S DOCUMENTARY, THOUGH, spills some of those secrets for her. It shows us, through re-enactments rendered in drawings, how Stewart made the most of her time in prison. She gave talks, advising the other women on how they might start their own businesses after their release. She cleaned bathrooms. She made sure she learned something new every day. And when her sentence was complete, she stepped back into the world wearing a swingy-chic poncho that a friend and fellow inmate had hand-crocheted for her. DIY devotees grabbed their hooks and eagerly made their own versions.

That poncho was a symbol of something Stewart had always stood for, even though many had over the years misread—and even been angered by—her message. Stewart believed in the democracy, and the pleasure, of the "domestic arts," historically the province of women. She wanted us to know that those skills, long considered inferior to manly pursuits, had

**Stewart believed
in the democracy,
and the pleasure,
of the 'domestic
arts,' historically the
province of women**

value. You *could* learn to crochet. You *could* use gold leaf to make an Easter egg worthy of a king. You *could* assemble a bunch of garden flowers in an earthenware vase and make it look like a million bucks. Your results might not be as perfect as Martha's, and she probably knew that as well as you did. But maybe setting the bar high was a sign of respect for her audience, rather than condescension. Really, she just wanted you to try.

The subtext of *Martha* is that Stewart has been punished enough. She's earned her day in the sun. And sure enough, today, almost everyone loves her. Her Instagram account—complete with "thirst trap" selfies and photos taken with one of her besties, Snoop Dogg—is a delight. Her 100th cookbook will be published this month. And maybe now those of us who once snickered at her dogged pursuit of perfection, or delighted in hearing that she wasn't a particularly nice person—I confess I used to be one of them—can see that we were participating in an insidious form of misogyny. As her son-in-law, lawyer John Cuti, puts it in *Martha*, "She was a tough boss, but some of the behavior that she would be taken to task for would be applauded if a man did it in the business world. That's a cliché at this point, but it doesn't mean it wasn't true."

We also see vintage 1990s footage of Owen J. Lipstein, the editor in chief of the ever sardonic *Spy* magazine, making this lofty pronouncement: "The more you know about this woman, the less you like her." Being liked: it's what every woman wants. Right? Yet maybe Stewart—particularly the younger, bolder, world-conquering Stewart, who asked for everything she wanted even as men in power tried to block her—didn't care so much. And today, the more we know about this woman, the more we like her. She no longer makes us feel bad about ourselves. Because after all, it has always been our job, not hers, to guard our self-worth. And if, along the way, we learned something about how to make exceptionally lifelike fondant butterflies, daisies, or forget-me-nots? That was just the icing on the cake. □

FEATURE

On fathers, and the limits of forgiveness

BY ROBERT DANIELS

IN 2016, TITUS KAPHAR MADE *THE Jerome Project*, a short documentary in which he confronts how his father's abuse and drug use harmed his childhood. But upon completing it, he discovered he had only scratched the surface. "When I finished, what was clear to me is that it did a good job of telling us where we were, but not how we got there," he says.

So he turned to fiction. In his new film *Exhibiting Forgiveness*, which premiered at Sundance in January and hit theaters in October, Kaphar casts André Holland as Tarrell, a celebrated American painter (as Kaphar is) whose life is unmoored by the re-emergence of his abusive father and the fragile health of his mother. His parents' religious beliefs create the expectation that Tarrell will grant easy absolution to his dad, thrusting Tarrell into a chaotic battle between religious values and the hurt he still carries. The film breaks from a long tradition in Black cinema of relying on religion, and the forgiveness it demands, as an all-healing balm. Instead, it offers a raw and realistic portrayal of what it looks like to process childhood trauma well into adulthood. And it let Kaphar himself dig deeper. "Allowing fiction to play a part allowed me to go into my father's head in a way that a documentary wouldn't allow me to do."

Kaphar's art has often provided space to revisit the past. *The Jerome Project* was born out of a search in prison records for information about his father, through which he found 97 incarcerated Black men who share his father's name; he interviewed them and painted Renaissance- and Byzantine-inspired portraits of them on gold leaf. His other works reclaim history through whitewashed portraits of Black Civil War soldiers, col- lages that place Black people's faces

in confrontation with slaveholders, devotional scenes that refigure Black people into biblical text.

Exhibiting Forgiveness is a culmination of much of this work. "A friend of mine said after seeing the film, 'You've been painting this movie your entire life,'" says Kaphar. His close partner in its conception is Holland, whose inviting gaze and coy smile helped power Barry Jenkins' *Moonlight* and Ava Du-Vernay's *Selma*. Watching Tarrell's heartache and frank ruminations, you sense that only together could this duo have arrived at such an honest portrayal of religion's limits for processing generational trauma.

HOLLAND AND KAPHAR began to develop their bond months before filming. The director invited his star to his studio in New Haven, Conn., to learn how to paint. During that period, they also learned about each other. "We have very different relationships to our fathers, but we still profoundly connected with each other about our fathers," Holland explains

during a recent Zoom conversation.

"André's commitment to his practice is profound and pretty much the only reason this film could work," says Kaphar. "You need somebody who's willing to go all the way." Holland: "This territory we are trafficking in was heavy. We made a silent pact to take care of each other, to check in to make sure that we were OK."

Those months together also imbued their bond with trust. *Exhibiting Forgiveness* is packed with intense breakdowns and triggering confrontations. When he thinks back on the abuse his father doled out on him and his mother, Tarrell is afflicted by post-traumatic nightmares of his father's violent addiction and fits of rage. In one heartbreaking scene, La'Ron (John Earl Jelks) forces a teenage Tarrell to continue mowing a white woman's lawn even after seeing his son's foot impaled by a nail. Those nightmares have caused Tarrell to feel a debilitating angst that he'll repeat the same mistakes with own son.

Digging up such personal pain took an emotional toll on Kaphar. "Watching André go through what I went through broke me," he recalls. "He made me feel the emotions that I had been suppressing." Holland channeled his personal struggles too. The actor's own father was facing cancer when he first received Kaphar's script. Holland recorded conversations with his dad that informed his approach to Tarrell. Jelks conjured his relationship with his own dad too. The set became a "space for all of our dads to be there with us and to be in communion with all of those spirits," says Holland.

THAT SPIRITUALITY EXISTS in every frame, especially in the act of painting. The only place where Tarrell finds peace—apart from with his young son and R&B-singer wife Aisha (Andra Day)—is in his studio. There, art is not only a meditation. It's also devotional.

Kaphar painted several works for the film, each in different stages of completion to give the impression of Holland crafting the pieces. These oils are inspired by Tarrell's memories—kids jumping fences, riding bikes. They do not feature the radiant angels



▲
Kaphar's paintings for the movie, recently exhibited at L.A.'s Gagolian Gallery



Holland and Day as Tarrell and Aisha,
a married painter-singer duo

or images of Christ that typify some of Kaphar's work. But he still believes that even the film's pieces are firmly rooted in his religious upbringing. "The people who love me most are believers," he says. "Even though my spiritual journey looks a little different than, say, my grandmother and my mom's, my values are rooted in what those women taught me."

Perhaps it's the intentional blending of craft and the divine that makes *Exhibiting Forgiveness* such a clear-eyed critique of absolution's finite capacity for closure. Because unlike films like *The Green Mile*, *The Color Purple*, *Soul Food*, the *Best Man* series, and *Kingdom Come*, which often hasten forgiveness to speed toward neat resolutions, *Exhibiting Forgiveness* doesn't suppose the problems between Tarrell and La'Ron can be waved away by a magic wand. And unlike in many of those films, its avoidance of forgiveness as a simple fix in turn avoids shifting the responsibility of the sin away from the sinner to the victim.

In one evocative scene, Tarrell's mother Joyce (Aunjanue Ellis-Taylor) pleads with him to forgive La'Ron. She quotes the Bible—Matthew 6:14–15: "For if you forgive other people when they sin against you, your heavenly

Father will also forgive you." Tarrell responds with the story of God testing Abraham by demanding he kill his only son Isaac, using the Scripture to show how God's word can neither be taken wholesale nor used to mend all wounds. With roots in Alabama's Southern Black church, Holland found the charged scene difficult to approach. "I have a deeply ingrained reverence for the biblical. The idea of saying a cuss word in the same sentence as a Bible verse was grounds to get me sent straight to hell," he says with a chuckle.

Holland is studying for his master's in religion and public life at Harvard. He's thought about the origins of religion and how we define it. "Religion's been used to inspire folks, and it's also been used to justify some pretty horrific things as well. I was bound up in that struggle as we were on set. I could not decouple those two things," he says.

FOR TARRELL'S FATHER, religion is used as a pathway back to his son. The film is smartly slippery on whether La'Ron's transformation is genuine.

He never takes responsibility for his abuse or his drug habit, positioning them as character-building obstacles. Because La'Ron doesn't provide adequate grounds for reconciliation, Tarrell is left to do much of the emotional work of moving on. It's a one-sided, inward turn that favors ambiguity over catharsis.

Kaphar refrains from granting the viewer or the character a neat ending. He says he hopes to inspire viewers to inspect the toxic relationships they've carried on for the wrong reasons. "The way that I was taught forgiveness was to turn the other cheek and forgive at all costs. I've done that often to my detriment," says Holland. "One of the things I learned in the process of doing this film, that I'm continuing to learn, is forgiveness with boundaries."

And yet, Kaphar manages never to make La'Ron wholly unlikable; he is flawed but not evil. That nuance is the result of decades' worth of introspection. It also allowed Kaphar to come to a life-altering conclusion. "My father's been struggling for most of my life, and I needed to be honest about that," explains Kaphar. "I can say this now: I still love him. More importantly now, after making this film, I realize that my father is not the villain of my narrative." □

ESSAY

Fanfare for the gentle man

BY JUDY BERMAN

IN *WE LIVE IN TIME*, THE ROMANTIC drama whose slow October rollout has swept up moviegoers in a tidal wave of tears, Andrew Garfield plays a divorced man who finds love in a hopeless place. Recovering in the hospital after a distracted stumble into traffic, Garfield's Tobias meets the apologetic woman who struck him with her vehicle: Almut (Florence Pugh), a talented and fiercely ambitious chef. She becomes the star in their relationship, but he is its tender heart. Tasting her food makes him emotional; he frets about the future and cares for her when she's gravely ill. When she gets pregnant, Tobias takes notes to ensure they're prepared for childbirth.

It's a perfect role for Garfield, a 41-year-old actor who radiates gentleness—and who has spoken with great eloquence about grieving his mother, who died in 2019. That synergy has been reinforced by a giddily received press tour that has fused the actor's personality with his character's, as he offers earnest, sometimes tearful insights about love, death, the power of art to capture both. He explained to *Sesame Street*'s Elmo how missing his mom kept her memory alive. While cuddling puppies in a BuzzFeed video, he riffed on the meaning of life. In a viral clip from the *New York Times*' *Modern Love* podcast, he breaks down over a real-life love story.

Garfield's status as the internet's boyfriend du jour was confirmed by the anticipation that preceded his Oct. 18 interview on Amelia Dimoldenberg's YouTube series *Chicken Shop Date*. And it echoed the fanfare, just a few weeks earlier, that surrounded an actor who occupies a similar niche: Adam Brody, the star of Netflix's hit rom-com series *Nobody Wants This*. Brody made his sensitive-guy bones two decades ago as the geek-chic Seth Cohen in *The O.C.* His latest character is a “hot rabbi”



The gentle man is this fall's most thirstily embraced archetype

▲
Clockwise from left: Garfield plays the sensitive dad in *We Live in Time*; Brody interprets Judaism in *Nobody Wants This*; and the Kelce brothers bond



whose vocation imbues him with decency and depth. And if the gentle man is this fall's most thirstily embraced leading-man archetype, he's also popping up elsewhere, from football's Kelce brothers expressing their mutual love to the senior singles in *The Golden Bachelorette*.

It isn't exactly surprising that these exemplars of emotional intelligence are resonating with an overwhelmingly female audience; their appeal as fantasy fodder, alongside bad boys and men in uniform, is perennial. Yet their ubiquity comes at a significant political moment. As we approach an election that pits a self-possessed woman and her self-effacing male running mate against a ticket that gives voice to alpha-male misogyny, voters of all genders will choose between diametrically

opposed visions of masculinity. A nation that has never elected a female President is about to find out whether the kind of gentleness so many of us find so attractive can prevail over vitriolic machismo when it counts.

FEW TOPICS in the cultural conversation are as fraught as masculinity. This has been the case since 20th century feminists started illuminating gendered injustices—but especially since the #MeToo movement exposed so many powerful men as predators, from America's dad Bill Cosby to the urbane interviewer Charlie Rose. Years earlier, the term *nice guy syndrome* had emerged to describe men who self-identified as kind and expected women to reward them for it with love and sex. Meanwhile, increased visibility for queer, trans, and nonbinary identities has challenged gender essentialism writ large.



So clarity is important when we talk about the gentle man as an archetype. He need not be a gentleman in the courtly sense, holding doors for his date. But, as a character or celebrity marketed as a romantic hero to an audience of women who are attracted to men, he is canonically straight (although queer analogues exist). What he emphatically isn't is a calculated nice guy, hoarding sensitivity points to cash in with women. Nor does he make a conspicuous performance of progressive masculinity, à la *Ted Lasso* or those dated Feminist Ryan Gosling memes. He may not think much at all about gender, as far as we can tell.

Instead of striving to be singled out as a good guy, the gentle man behaves like a sincere, compassionate, introspective person. He talks about his feelings but also knows how to listen. He has likely been to therapy but

doesn't drone on about it. Part of the appeal of Brody's *Nobody Wants This* character is his fascination with questions of philosophy and faith, and the pleasure he takes in sharing them with his new girlfriend (Kristen Bell). The sexagenarian men of *The Golden Bachelorette* are secure enough to cry on camera. Many are widowers. One fan favorite, Charles Ling, finds that the friendships he forges with male castmates help him move on after grief.

Unlike his posturing nice-guy and male-chauvinist counterparts, the gentle man has experienced enough hardship to understand that there are more important things in life than being perceived as tough. Which explains why he's not intimidated to stand beside a powerful woman. Travis Kelce, for all his candor on *New Heights*, the podcast he co-hosts with brother Jason, has never come off as insecure about being known as the football-player boyfriend of Taylor Swift. In the climactic scene of *We Live in Time*, Garfield's Tobias literally cheers from the sidelines as his ailing yet resolute wife competes in a prestigious culinary competition.

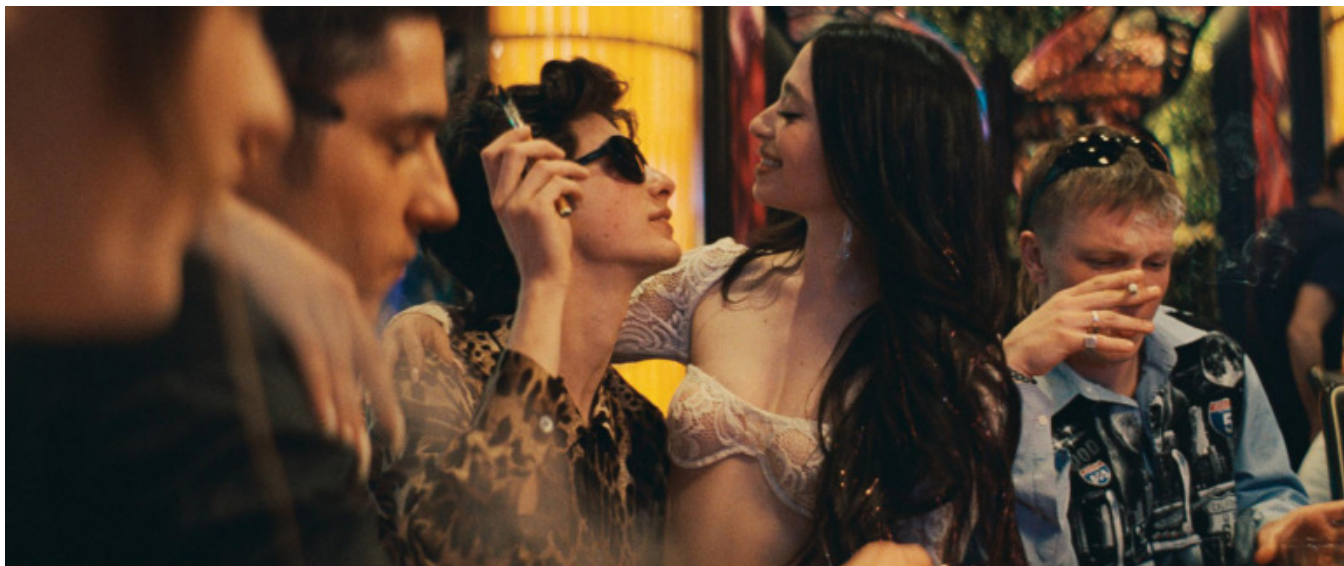
IT'S POSSIBLE TO OVERESTIMATE the connection between representation and reality, the way certain archetypes are portrayed in pop culture and how those portrayals impact society. (*Lean In* and Beyoncé didn't stop us from electing Trump in 2016, with the ultimate result of the Supreme Court overturning *Roe v. Wade*.) But we certainly take cues from these things about how to be in the world.

In that regard, evidence suggests that men are suffering from a dearth of useful information. A new National Research Group report found that of the top 20 fictional male role models identified by males ages 13 to 30, not one lives in our reality. Instead, respondents cited Spider-Man, Harry Potter, SpongeBob. (Women like superheroes too, but also look up to Meredith Grey on *Grey's Anatomy* and Olivia Benson from *Law & Order: SVU*.) The study warned that boys are "trapped between competing visions of masculinity"—unsure of whether to reject machismo or embrace the cartoonish hypermasculinity

of influencers like Andrew Tate—and that such uncertainty can lead to underachievement, drug abuse, deaths of despair. The NRG found respondents agreed about needing "more stories that center on men who are emotionally vulnerable and honest about their feelings."

The irony is that the male characters they crave already exist; they're just being marketed to women. In this election year, however, no demographic can escape the war between conflicting visions of masculinity in the political arena. Donald Trump and J.D. Vance prescribe and inhabit antiquated gender roles; their side wants men in the Oval Office, women (with limited reproductive rights) at home, "childless cat ladies" ostracized. Kamala Harris' running mate, Tim Walz, represents an alternative that closely resembles the gentle guys who've taken over our screens. (To be clear: we're talking about persona. Whether any politician angling to be in line for Commander in Chief can fairly be called gentle is a separate question.) He finds men who fixate on controlling women's bodies "weird." Like Travis Kelce, he's comfortable supporting a woman whose prominence eclipses his own. The *Bachelorette* dad who hosts Thanksgiving for his lesbian daughter's friends echoes the story of how Walz served as faculty adviser to a gay-straight alliance at the school where he taught and coached.

What remains to be seen is whether this gentle form of masculinity and the more assertive femininity with which it coexists can win an election that is also a referendum on gender in America. Barack Obama confirmed as much when he lamented, at a campaign rally, "some men ... think Trump's behavior—of bullying people or putting them down—is somehow macho, a sign of strength. I'm telling you, that's not what real strength is ... Real strength is about helping those who have less or need some help, standing up for those who can't always stand up for themselves." If the entertainment that speaks to us is any indication, we know this. But if we lose sight of what we really want somewhere between the couch and the polls, well, it wouldn't be the first time. □



MOVIES

A strip-club fairy tale with a generous heart

BY STEPHANIE ZACHAREK

THERE ARE FEW FILMMAKERS AS OPENHEARTED, as stone-soup inventive, as Sean Baker. In movies like *Tangerine* and *The Florida Project*, he's shown a knack for doing a lot with a little. And he makes us feel like insiders even in worlds that may be unfamiliar to us. *Anora*, which won the Palme d'Or at Cannes this year, invites us into the life of a young sex worker from Brooklyn named Ani—she doesn't like her full name, which is the same as the movie's title, though by the end, it's the only name regal enough to suit her tender, fighting spirit.

Ani, played by Mikey Madison (perhaps best known as Max Fox on *Better Things*), dances in a Manhattan strip club. When a client asks specifically for a Russian speaker, she's got the skills: she's Uzbek American and used to speak Russian with her grandmother. And so Ani meets Ivan (Mark Eydelshteyn), the son of a Russian oligarch, a funny, endearing kid—he claims to be 21, but you doubt it—who's as playful as a wolf pup and who tosses hundreds around like play money. This is the beginning of a whirlwind romantic adventure, an exhilarating screwball-comedy matchup, though you suspect there'll eventually be trouble in paradise.

Baker allows us to relish this romance of gamboling youth—its high point is an impulsive Las Vegas marriage, a betrothal of two kids at play—for a long, joyous stretch. Then he shifts gears, into glorious, spin-art chaos. New characters barge into our reverie: there's bumbling Toros (Baker's longtime collaborator Karren Karagulian), Ivan's godfather, sent in at the behest of Ivan's parents—they've caught wind of their son's marriage and have ordered Toros to correct what they see as a family disgrace.

Eydelshteyn and Madison: kids in love, and at play

If you can trust any filmmaker, you can trust Baker

Garnick (Vache Tovmasyan) is stuck with being the tough-guy enforcer. And then there's Igor (Yura Borisov), who's been asked to come along and provide extra muscle—he seems mildly intimidating, until you get a good look at his eyes and see the poetry there.

ANORA IS CRAZY-GOOD FUN, but Baker isn't in it just for the nutso entropy. His movie is animated by the spirit of *Something Wild*—and *Married to the Mob*—era Jonathan Demme. For the space of one movie, at least, it's as if Demme, with his golden heart, has been restored to us. Baker has that kind of generosity. And like Demme, he's great with actors. Madison is simply wonderful: she plays Ani as a woman in charge, so capable you don't worry about her one bit. Then you catch glimmers of her vulnerability, of her embarrassment at having yielded to a false dream. Her spontaneous, resilient smile gives way to something that looks like worry, and it's wrenching.

Yet we know Ani will get the happy ending she deserves, even if Baker doesn't hand it to us directly—instead, he points the way to the life she'll move toward after the movie's final moment of radiant grace. This is one of those endings that leaves you feeling a little bereft. You want to be able to see these characters again, to check in on their hard-earned happiness. But if you can trust any filmmaker, you can trust Baker. He's promised us they'll be OK. And so they will. □

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Deborah Lipstadt The Holocaust historian on the global rise in antisemitism, the competing traumas of Oct. 7 and Gaza, and being played by Rachel Weisz

You are the President's special envoy to monitor and combat antisemitism. How's it going? Business is booming, and I'm the only one in the Administration who wants a recession [in my field].

Does that mean your job has gotten easier or harder in the past year? When I came into office, my very first speech talked about the need to get people to take anti-semitism seriously. "The Jews have it made! What's the problem?"—I have less of that now. I hear from people telling their 12-year-old grandson who wears a kippah, "Put on a baseball cap. For safety's sake." On the Upper East Side of Manhattan.

You grew up when Israel was the underdog. Whole generations have known it first as an occupier. I was there during the Six-Day War. I was a kid, but, you know, we didn't know what was going to happen. That profile has changed dramatically. At the same time, there is still an intense hatred among many entities surrounding Israel that want to see its demise.

Your academic work is centered on the Holocaust. Is hearing what's happening in Gaza described as a genocide triggering in any way? There's a definition of genocide. You can say this is a tragedy; many people in Gaza are not supporters of Hamas. You can say the suffering is immense and without a seeming end. But that's not a genocide.

Between what happened in Israel on Oct. 7 and in Gaza afterward, sometimes it can seem like the traumas are in competition. There certainly are competing traumas. I don't get into competitive suffering. Your two compacted molars doesn't make my one feel better.

How can one distinguish between criticizing Israel and being antisemitic?

To hold Jews everywhere responsible for what goes on in Israel is antisemitism. But if criticism of Israel's policies was antisemitism, the hundreds of thousands of Israelis who are protesting in the streets on a Saturday night would be antisemites.



I don't think it takes you anywhere. We are talking about responding to an attack. The 1,200 dead on Oct. 7 is [as a proportion of the population] like 48,000 Americans. If anybody had said we should sit silently by after 9/11, not respond? If someone hits, you've got to hit them back.

Did you just say we? That's right. That's a good point. I was speaking both as an envoy for Joe Biden—who flew there after the attack—and, yes, I speak also as a Jew.

Do you think Jewish people in general feel as if their fate is attached to Israel's? I think some Jews do. Some Jews feel that if anything would happen to Israel they would be less safe in the world. There are many Jews who feel that way.

Does it work the other way? If Israel is delegitimized—a big word inside Israel—are Jews more vulnerable? I think so. I think in many places, yes. And we also have to think about it. You want to talk about a genocide? Talk about the genocide of the Uighurs.

That's not happening on camera though, is it? The Chinese have made sure of that. But if someone were to find a group of Chinese nationals and beat them up [in retaliation], we'd be appalled.

Rachel Weisz played you in *Denial*, the movie about your being sued for libel by a Holocaust denier. Are you still in touch? We email. After I got appointed, she told the producers they have to call her *ambassador*. She took the part really seriously. Her father escaped from Hungary, and her mother was born in Vienna to a Jewish father, and they had to get out. So she came to this quite personally. —KARL VICK

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